



**CITY OF MOUNT AIRY**  
**PUBLIC WORKS DEPARTMENT**  
**CONTRACT PROPOSAL**

**TIP NUMBER: EB-5014**

**COUNTY: SURRY**

**DESCRIPTION: LOVILLS CREEK & ARARAT RIVER GREENWAY**

**DATE OF ADVERTISEMENT: NOVEMBER 16, 2014**

**PRE-BID MEETING: 10:00 AM, DECEMBER 5, 2014, AT 440 E. PINE STREET,  
MOUNT AIRY, NC**

**BID OPENING: 10:00 AM, DECEMBER 16, 2014, AT 440 E. PINE STREET, MOUNT  
AIRY, NC**

**\*\*\* NOTICE \*\*\***

**ALL BIDDERS SHALL COMPLY WITH ALL APPLICABLE LAWS REGULATING THE PRACTICE OF GENERAL CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA. FOR CONTRACTS \$30,000 OR MORE, EXCEPT FOR CERTAIN SPECIALTY WORK AS DETERMINED BY THE LICENSING BOARD, BIDDERS ARE REQUIRED TO BECOME LICENSED BY THE NC LICENSING BOARD. NON-LICENSED BIDDERS ARE PERMITTED 60 DAYS AFTER BID OPENING TO OBTAIN PROPER LICENSING FOR THE TYPE OF PROJECT BEING LET. BIDDERS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE LAWS REGULATING THE PRACTICES OF ELECTRICAL, PLUMBING, HEATING AND AIR CONDITIONING AND REFRIGERATION CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA.**

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**NAME OF BIDDER**

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**ADDRESS OF BIDDER**

**RETURN BIDS TO: CITY OF MOUNT AIRY**

**Attention: Mitch Williams, P.E.**

**Person's Title: City Engineer**

**Physical Address: 440 E. Pine Street, Mount Airy, NC 27030**

**ALL BIDS MUST BE RECEIVED PRIOR TO THE DATE AND TIME LISTED  
ABOVE.**

Project Name LOVILLS CREEK & ARARAT RIVER GREENWAY  
Project No. EB-5014

### CERTIFICATION

I HEREBY CERTIFY THAT THE SPECIFICATIONS CONTAINED HEREIN AND THE ACCOMPANYING PLANS AND SPECIFICATIONS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION.

SIGNED, SEALED, AND DATED THIS 12<sup>th</sup> DAY OF November, 2014.

BY: Matthew Ludwig, PE

Stewart, Inc.  
421 Fayetteville Street  
Suite 400  
Raleigh, NC 27601  
License C-1051



# LOVILLS CREEK & ARARAT RIVER GREENWAY EB-5014

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## **INSTRUCTIONS TO BIDDERS**

**PLEASE READ ALL INSTRUCTIONS CAREFULLY BEFORE PREPARING AND SUBMITTING YOUR BID.**

**All bids shall be prepared and submitted in accordance with the following requirements. Failure to comply with any requirement shall cause the bid to be considered irregular and shall be grounds for rejection of the bid.**

- 1.** The bid form furnished by CITY OF MOUNT AIRY with the proposal shall be used and shall not be altered in any manner. **DO NOT SEPARATE THE BID FORM FROM THE PROPOSAL!**
- 2.** All entries on the bid form, including signatures, shall be written in ink.
- 3.** The Bidder shall submit a unit price for every item on the bid form. The unit prices for the various contract items shall be written in figures. **\*\*\*Unit prices must be limited to TWO decimal places.\*\*\***
- 4.** An amount bid shall be entered on the bid form for every item. The amount bid for each item shall be determined by multiplying each unit bid by the quantity for that item, and shall be written in figures in the "Amount Bid" column of the form.
- 5.** The total amount bid shall be written in figures in the proper place on the bid form. The total amount shall be determined by adding the amounts bid for each item.
- 6.** Changes in any entry shall be made by marking through the entry in ink and making the correct entry adjacent thereto in ink. A representative of the Bidder shall initial the change in ink. Do not use "White Out" or similar product to make corrections.
- 7.** The bid shall be properly executed. All bids shall show the following information:
  - a. Name of individual, firm, corporation, partnership, or joint venture submitting bid.
  - b. Name of individual or representative submitting bid and position or title.
  - c. Name, signature, and position or title of witness.
  - d. Federal Identification Number
  - e. Contractor's License Number (If available)
- 8.** Bids submitted by corporations shall bear the seal of the corporation.
- 9.** The bid shall not contain any unauthorized additions, deletions, or conditional bids.

**10.** The bidder shall not add any provision reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.

**11. THE PROPOSAL WITH THE BID FORM STILL ATTACHED SHALL BE PLACED IN A SEALED ENVELOPE AND SHALL HAVE BEEN DELIVERED TO AND RECEIVED AT THE CITY OF MOUNT AIRY PUBLIC WORKS DEPARTMENT, 440 EAST PINE STREET, MOUNT AIRY, NC 27030, BY 10:00 AM ON, TUESDAY, DECEMBER 16, 2014.**

**12.** The sealed bid must display the following statement on the front of the sealed envelope:

**“QUOTATION FOR – EB-5014 LOVILLS CREEK & ARARAT RIVER GREENWAY TO BE OPENED AT 10:00 AM ON, TUESDAY, DECEMBER 16, 2014.”**

**13.** If delivered by mail, the sealed envelope shall be placed in another sealed envelope and the outer envelope shall be addressed as follows:

**CITY OF MOUNT AIRY  
Attn: MITCH WILLIAMS, P.E.  
440 EAST PINE STREET  
MOUNT AIRY, NC 27030**

## NOTICE TO BIDDERS

Sealed Bids will be received by the offices of the CITY OF MOUNT AIRY, North Carolina, Public Works Department at 440 East Pine Street, Mount Airy, NC, until 10:00 a.m., local prevailing time of December 16, 2014 and then at said place be publicly opened and read aloud for the following:

CITY OF MOUNT AIRY  
LOVILLS CREEK & ARARAT RIVER GREENWAY  
NCDOT TIP: EB-5014

The project generally includes 2.19 total miles of trail construction, consisting of 1.74 miles of new 10 foot wide asphalt trail construction, 0.37 miles of new 10 foot wide concrete trail construction, 300 linear feet of new 10 foot wide wooden boardwalk construction, 130 linear feet of new bridge construction, associated clearing, drainage, erosion control, and signage.

No bid shall be considered or accepted by the CITY OF MOUNT AIRY unless at the time of its filing the same shall be accompanied by a deposit with the CITY OF MOUNT AIRY of cash, or a cashier's check or a certified check drawn on a bank or trust company insured by the Federal Deposit Insurance Corporation, in an amount equal to not less than five percent of the Proposal. In lieu of making the deposit as above provided, such Bidder may file a Bid Bond executed by a corporate surety licensed under the laws of the state of North Carolina to execute such bonds; conditioned that the surety will upon demand forthwith Contract in accordance with the Bid Bond. If upon acceptance of his Bid, a Bidder fails to enter into a Contract with the CITY OF MOUNT AIRY, the Bid deposit shall be forfeited to and become the property of the CITY OF MOUNT AIRY.

**A separate performance bond and payment bond each in an amount equal to one hundred percent of the Contract price will be required. Carriers must be authorized to do business in the state of North Carolina.**

Bidders must conform with the provisions of the North Carolina Contractor's Licensing Act of 1925, as amended.

The Owner reserves the right to reject any Proposal for failure to comply with all the requirements of this Notice or of any of the Contract Documents; however, it may waive any minor defects of informalities at its discretion. The Owner further reserves the right to reject any and all Proposals or to Award the contract, which in its judgment is in the best interest of the Owner.

The Contract is to be awarded to the lowest responsible, responsive bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents, is judged to be reasonable, and does not exceed the funds available. The low bidder shall be determined based upon the lowest bid amount for those items that comprise the base amount. Bid Alternate Items may be included in the bid sheet but shall not be considered as part of the base bid. Only after the low bidder is determined shall bid alternate items be considered. The owner reserves the right to select any Alternate or combination of Alternate items.

All prospective bidders are strongly urged to attend the Pre-Bid Conference. The pre-bid conference will be held at Public Works Department at 440 East Pine Street, Mount Airy, NC at 10:00 a.m., local prevailing time of December 5, 2014, to discuss the project and answer pertinent questions from prospective bidders.

Contract Documents may be examined at the following locations:

City Of Mount Airy, North Carolina, Public Works Department at 440 East Pine Street, Mount Airy, NC 27030

Accent Imaging, Raleigh, 919-782-3332

Carolinas Associated General Contractors ([www.cagc.org](http://www.cagc.org))

Stewart Engineering, Inc., 421 Fayetteville St. Suite 400, Raleigh, NC 27601

North Carolina offices of McGraw-Hill Dodge Corporation

Eastern Regional Office of Reed Construction Data in Norcross, GA

Hispanic Contractors Association of the Carolinas (HCAC) in Winston-Salem, Charlotte and Raleigh Areas – 877-227-1680

Copies of the Contract Documents may be obtained at Accent Imaging or using their online plan room. The Non Refundable Purchase of entire bid set includes all plans and specifications, including addenda released at time of order. Future addenda will be issued by plan room to plan holders. Payment should be made directly to Accent Imaging.

Accent Imaging will maintain an official plan holders list. Please contact Accent Imaging at 919-782-3332 to be added to this list if plans are received from any other source.

Questions may be directed to: Matt Ludwig, P.E., at Stewart, Inc., [mludwig@stewartinc.com](mailto:mludwig@stewartinc.com) or 919-866-4734.

Neither the Owner nor the Engineer will be responsible for full or partial sets of Contract Documents, including any Addendum obtained from any other source.

Bidders must certify that they do not and will not maintain or provide for their employees any facilities that are segregated on a basis of race, color, creed or any national origin and so certify with the form included in the Proposal.

- END OF SECTION -

**NCDOT STANDARD NOTES** (Federal Aid)

- A. NCDOT Standard Specifications – The 2012 North Carolina Department of Transportation Standard Specifications for Roads and Structures, herein referred to as the ‘Standard Specifications’, and the 2012 Roadway Standard Drawings, shall apply to all portions of this project except as may be modified by this document.
- B. Bidder Prequalification - Bidders are required to be prequalified with NCDOT for their specific discipline. Contractors wishing to become prequalified may obtain information through the NCDOT website at:  
<https://connect.ncdot.gov/business/Pages/default.aspx>
- C. Disadvantaged Business Enterprise References - Since this is a Federal-aid project with DBE participation, only those requirements and goals set forth by NCDOT Goal Setting Committee are applicable. References to any other requirements or to N.C. General Statute 143-128.2 shall not apply to this project. Refer to Special Provision SP1 G63.
- D. Award of Contract - The contract will be awarded to the lowest responsible, responsive bidder. Alternate items will not be considered in determining the low bidder and will only be evaluated after the award of the contract is made.
- E. Contractor Licensing – On all Federal-aid contracts, non-licensed contractors are permitted to submit bids, however they must be licensed prior to performing any work. Bidders are permitted 60 days, after bid opening, to become licensed by the North Carolina Licensing Board. If they fail to do so within 60 days, their bid will be considered non-responsive and will be rejected. If the successful bidder does not hold the proper license to perform any plumbing, heating, air conditioning, or electrical work in this contract, he will be required to sublet such work to a contractor properly licensed in accordance with *Article 2 of Chapter 87 of the General Statutes* (licensing of heating, plumbing, and air conditioning contractors) and *Article 4 of Chapter 87 of the General Statutes* (licensing of electrical contractors).
- F. Bonds - Please note that all Bid Bonds, Payment Bonds, and Performance Bonds required for this project, shall be those found on the NCDOT website. The bonds are located at:

Bid Bonds (M-5):

<https://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/04%20Bid%20Bonds.doc>

Payment Bonds (M-6):

<https://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/05%20Payment%20Bonds.doc>

Performance Bonds (M-7):

<https://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/06%20Performance%20Bonds.doc>

- G. Liability Insurance – In addition to any insurance requirements as may be required by the LGA, the Contractor is obligated to comply with Article 107-15 of the *Standard Specifications* including the dollar limits set forth.
- H. Buy America – This project shall be governed by the Buy America requirements, for the use of domestic steel and iron products, as outlined in the *Standard Specifications* and Special Provision SP1 G120.
- I. Proprietary Items - When a proprietary (brand name) product, whether material, equipment or procedure, are specified in the plans or specifications, they are used only to denote the style, type, character, and quality desired of the product. They do not restrict the bidder from proposing other brands, makes, or manufacturers, which are determined to be of equal quality. The approval, or disapproval of those products, will be made by the Engineer prior to allowing those product(s) or material(s) to be incorporated into the work.
- J. Retainage by LGAs – The LGA for this contract will not retain any amount or percentage from progress payments or final estimates due the contractor.  
  
Retainage by Contractors – Contractors are NOT permitted to retain any amount or percentage from monies due their subcontractors or material suppliers on federally funded projects except as permitted by Subarticle 109-4(B) of the *Standard Specifications*.
- K. Traffic Control –The requirements of the *Manual on Uniform Traffic Control Devices (MUTCD)* – FHWA, as amended by the *NCDOT Supplement to MUTCD*, shall apply. Traffic Control, both vehicular and pedestrian, shall be maintained throughout the project as required by these specifications as modified by the project plans or special provisions.



**ALLOWABLE CHANGES TO THE NCDOT 2012 STANDARD SPECIFICATIONS:**

1. *Article 102-1* - Delete this section in its entirety.
2. *Subarticle 102-8(B) Electronic Bids* – Delete this section in its entirety.
3. *Subarticle 102-10* – In line 7 of the first paragraph on page 1-18, “60” days shall be modified to “90” days.
4. *Subarticle 102-12(A)-Paper Bids* – In line 5 the reference to “Contract Officer” shall be changed to “STEWART with attention of Matt Ludwig”.
5. *Subarticle 102-12(B) Electronic Bids* – Delete this section in its entirety.
6. *Subarticle 103-2(B) Electronic Bids* – Delete this section in its entirety.
7. *Subarticle 103-3(A)-Criteria for Withdrawal of Bid* – Modify the reference “G.S.136-28.1” to “G.S.143-129.1”. In that same subarticle under (5), in the line 28, modify “State Contract Officer” to “STEWART with attention of Matt Ludwig”.
8. *Article 103-7* - In the first sentence, modify “14” calendar days to “10” per G.S.143-129.
9. *Article 103-9* - In the first sentence, modify “14” calendar days to “10” per G.S.143-129.
10. *Article 105-9 Construction Stakes, lines and Grades* - The Municipality will not set the stakes, lines or grades for this project.
11. *Article 107-5* – In line 11, change the word “entity” to “municipality”.
12. *Article 108-2* – Add the following requirement to this article after line 16 on page 1-65, “The municipality may add additional requirements as noted in the bid proposal”.
13. *Article 108-3* – Change “Division Engineer” in line 18, to “CITY OF MOUNT AIRY or its representative”.
14. *Article 108-4* – Change “Resident Engineer” in line 26 to “CITY OF MOUNT AIRY or its representative”.
15. *Article 109-8* – Delete this article in its entirety. Fuel Price Adjustments will not apply to this project.
16. *Article-620-4* - Delete line 3 through 27 on page 6-39. Asphalt Price Adjustments will not apply to this project.

**STATE OF NORTH CAROLINA  
CITY OF MOUNT AIRY**

**BID BOND**

Principal: \_\_\_\_\_  
Name of Principal Contractor

Surety: \_\_\_\_\_  
Name of Surety

Contract Number: \_\_\_\_\_ County: \_\_\_\_\_

Date of Bid: \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL CONTRACTOR (hereafter, PRINCIPAL) and SURETY above named, are held and firmly bound unto the **CITY OF MOUNT AIRY** in the full and just sum of five (5) percent of the total amount bid by the Principal for the project stated above, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

NOW, THEREFORE, the condition of this obligation is: the Principal shall not withdraw its bid within sixty (60) days after the opening of the bids, or within such other time period as may be provided in the proposal, and if the **CITY OF MOUNT AIRY** shall award a contract to the Principal, the Principal shall, within fourteen (14) calendar days after written notice of award is received by him, provide bonds with good and sufficient surety, as required for the faithful performance of the contract and for the protection of all persons supplying labor, material, and equipment for the prosecution of the work. In the event the Principal requests permission to withdraw his bid due to mistake in accordance with the provisions of Article 103-3 of the *Standard Specifications for Roads and Structures*, the conditions and obligations of this Bid Bond shall remain in full force and effect until the **CITY OF MOUNT AIRY** makes a final determination to either allow the bid to be withdrawn or to proceed with award of the contract. In the event a determination is made to award the contract, the Principal shall have fourteen (14) calendar days to comply with the requirements set forth above. In the event the Principal withdraws its bid after bids are opened except as provided in Article 103-3, or after award of the contract has been made fails to execute such additional documents as may be required and to provide the required bonds within the time period specified above, then the amount of the bid bond shall be immediately paid to the **CITY OF MOUNT AIRY** as liquidated damages.

IN TESTIMONY WHEREOF, the Principal and Surety have caused these presents to be duly signed and sealed.

This the \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_

\_\_\_\_\_  
Surety

By \_\_\_\_\_  
General Agent or Attorney-in-Fact Signature

*Seal of Surety*

\_\_\_\_\_  
Print or type Signer's Name

**BID BOND**

**CORPORATION**

SIGNATURE OF CONTRACTOR (Principal)

\_\_\_\_\_  
Full name of Corporation

\_\_\_\_\_  
Address as prequalified

By \_\_\_\_\_  
Signature of **President, Vice President, Assistant Vice President**  
*Select appropriate title*

\_\_\_\_\_  
Print or type Signer's name

*Affix Corporate Seal*

Attest \_\_\_\_\_  
Signature of **Secretary, Assistant Secretary**  
*Select appropriate title*

\_\_\_\_\_  
Print or type Signer's name

Contract No. \_\_\_\_\_  
County \_\_\_\_\_

Rev. 4-19-11

**BID BOND**

**LIMITED LIABILITY COMPANY**

SIGNATURE OF CONTRACTOR (Principal)

Name of Contractor

\_\_\_\_\_  
Full name of Firm

\_\_\_\_\_  
Address as prequalified

**Signature of Member/  
Manager/Authorized Agent**

\_\_\_\_\_  
Individually

\_\_\_\_\_  
Print or type Signer's name

Contract No. \_\_\_\_\_  
County \_\_\_\_\_

Rev. 4-19-11

## **BID BOND**

### **INDIVIDUAL DOING BUSINESS UNDER A FIRM NAME**

SIGNATURE OF CONTRACTOR (Principal)

Name of Contractor

\_\_\_\_\_  
Individual Name

Trading and doing business as

\_\_\_\_\_  
Full name of Firm

\_\_\_\_\_  
Address as prequalified

Signature of Contractor

\_\_\_\_\_  
Individually

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Print or type Signer's name

Contract No. \_\_\_\_\_  
County \_\_\_\_\_

Rev. 4-19-11

**BID BOND**

**INDIVIDUAL DOING BUSINESS IN HIS OWN NAME**

SIGNATURE OF CONTRACTOR (Principal)

Name of Contractor \_\_\_\_\_  
Print or type Individual Name

\_\_\_\_\_  
Address as prequalified

Signature of Contractor \_\_\_\_\_  
Individually

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Print or type Signer's name

Contract No. \_\_\_\_\_  
County \_\_\_\_\_

Rev. 4-19-11

**BID BOND**

**PARTNERSHIP**

SIGNATURE OF CONTRACTOR (Principal)

\_\_\_\_\_  
Full name of Partnership

\_\_\_\_\_  
Address as prequalified

By \_\_\_\_\_  
Signature of Partner

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Print or type Signer's name

**BID BOND**  
**JOINT VENTURE (2 or 3)**  
SIGNATURE OF CONTRACTORS (Principal)

Instructions to Bidders: **2 Joint Ventures**, Fill in lines (1), (2) and (3) and execute. **3 Joint Venturers** Fill in lines (1), (2), (3), (4) and execute. Line (1), print or type the name of Joint Venture. On line (2), print or type the name of one of the joint venturers and execute below in the appropriate manner required by Article 102-8 of the *Specifications*. On Line (3), print or type the name of second joint venturer and execute below in the appropriate manner required by said article of the Specifications. On Line (4), print or type the name of the third joint venturer, if applicable and execute below in the appropriate manner required by said article of the Specifications. This form of execution must be strictly followed.

(1) \_\_\_\_\_  
Name of Joint Venture

(2) \_\_\_\_\_  
Name of Contractor

\_\_\_\_\_  
Address as prequalified

\_\_\_\_\_  
Signature of Witness or Attest                      By                      Signature of Contractor

\_\_\_\_\_  
Print or type Signer's name    Print or type Signer's name

*If Corporation, affix Corporate Seal*

and

(3) \_\_\_\_\_  
Name of Contractor

\_\_\_\_\_  
Address as prequalified

\_\_\_\_\_  
Signature of Witness or Attest                      By                      Signature of Contractor

\_\_\_\_\_  
Print or type Signer's name    Print or type Signer's name

*If Corporation, affix Corporate Seal*

and

(4) \_\_\_\_\_  
Name of Contractor *(for 3 Joint Venture only)*

\_\_\_\_\_  
Address as prequalified

\_\_\_\_\_  
Signature of Witness or Attest                      By                      Signature of Contractor

\_\_\_\_\_  
Print or type Signer's name    Print or type Signer's name

*If Corporation, affix Corporate Seal*



**CITY OF MOUNT AIRY**

**CONTRACT PAYMENT BOND**

Date of Payment Bond Execution \_\_\_\_\_

Name of Principal Contractor \_\_\_\_\_

Name of Surety: \_\_\_\_\_

Name of Contracting Body: \_\_\_\_\_

\_\_\_\_\_

Amount of Bond: \_\_\_\_\_

Contract ID No.: \_\_\_\_\_

County Name: \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL CONTRACTOR (hereafter, PRINCIPAL) and SURETY above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the Contracting Body, numbered as shown above and hereto attached:

NOW THEREFORE, if the principal shall promptly make payment to all persons supplying labor and material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bound parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Contract No. EB-5014  
County Surry

Rev. 11-1-12

## CONTRACT PAYMENT BOND

*Affix Seal of Surety Company*

\_\_\_\_\_  
Print or type Surety Company Name

By

\_\_\_\_\_  
Print, stamp or type name of Attorney-in-Fact

\_\_\_\_\_  
Signature of Attorney-in-Fact

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Address of Attorney-in-Fact

**CONTRACT PAYMENT BOND**

**CORPORATION**

SIGNATURE OF CONTRACTOR (Principal)

\_\_\_\_\_  
Full name of Corporation

\_\_\_\_\_  
Address as prequalified

By \_\_\_\_\_  
Signature of **President, Vice President, Assistant Vice President**  
*Select appropriate title*

\_\_\_\_\_  
Print or type Signer's name

*Affix Corporate Seal*

Attest \_\_\_\_\_  
Signature of **Secretary, Assistant Secretary**  
*Select appropriate title*

\_\_\_\_\_  
Print or type Signer's name

Contract No. \_\_\_\_\_  
County \_\_\_\_\_

Rev. 4-19-11

**CONTRACT PAYMENT BOND**  
**LIMITED LIABILITY COMPANY**

SIGNATURE OF CONTRACTOR (Principal)

Name of Contractor

\_\_\_\_\_  
Full name of Firm

\_\_\_\_\_  
Address as prequalified

By:

\_\_\_\_\_  
Signature of **Member, Manager, Authorized Agent**  
*Select appropriate title*

\_\_\_\_\_  
Print or type Signer's name

Contract No. \_\_\_\_\_  
County \_\_\_\_\_

Rev. 4-19-11

**CONTRACT PAYMENT BOND**

**INDIVIDUAL DOING BUSINESS UNDER A FIRM NAME**

SIGNATURE OF CONTRACTOR (Principal)

Name of Contractor

\_\_\_\_\_  
Individual Name

Trading and doing business as

\_\_\_\_\_  
Full name of Firm

\_\_\_\_\_  
Address as prequalified

Signature of Contractor

\_\_\_\_\_  
Individually

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Print or type Signer's name

Contract No. \_\_\_\_\_  
County \_\_\_\_\_

Rev. 4-19-11

**CONTRACT PAYMENT BOND**

**INDIVIDUAL DOING BUSINESS IN HIS OWN NAME**

SIGNATURE OF CONTRACTOR (Principal)

Name of Contractor \_\_\_\_\_  
Print or type Individual name

\_\_\_\_\_  
Address as prequalified

Signature of Contractor \_\_\_\_\_  
Individually

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Print or type Signer's name

Contract No. \_\_\_\_\_  
County \_\_\_\_\_

Rev. 4-19-11

**CONTRACT PAYMENT BOND**

**PARTNERSHIP**

SIGNATURE OF CONTRACTOR (Principal)

\_\_\_\_\_  
Full name of Partnership

\_\_\_\_\_  
Address as prequalified

By \_\_\_\_\_  
Signature of Partner

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Print or type Signer's name

**CONTRACT PAYMENT BOND**  
**JOINT VENTURE (2) or (3)**  
SIGNATURE OF CONTRACTORS (Principal)

Instructions to Bidders: **2 Joint Ventures**, Fill in lines (1), (2) and (3) and execute. **3 Joint Venturers** Fill in lines (1), (2), (3), (4) and execute. On Line (1), print or type the name of Joint Venture. On line (2), print or type the name of one of the joint venturers and execute below in the appropriate manner required by Article 102-8 of the *NCDOT Standard Specifications*. On Line (3), print or type the name of second joint venturer and execute below in the appropriate manner required by said article of the Specifications. On Line (4), print or type the name of the third joint venturer, if applicable and execute below in the appropriate manner required by said article of the Specifications. This form of execution must be strictly followed.

(1) \_\_\_\_\_  
Name of Joint Venture

(2) \_\_\_\_\_  
Name of Contractor

\_\_\_\_\_  
Address as prequalified

\_\_\_\_\_  
Signature of Witness or Attest

By

\_\_\_\_\_  
Signature of Contractor

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Print or type Signer's name

*If Corporation, affix Corporate Seal*

and

(3) \_\_\_\_\_  
Name of Contractor

\_\_\_\_\_  
Address as prequalified

\_\_\_\_\_  
Signature of Witness or Attest

By

\_\_\_\_\_  
Signature of Contractor

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Print or type Signer's name

*If Corporation, affix Corporate Seal*

and

(4) \_\_\_\_\_  
Name of Contractor *(for 3 Joint Venture only)*

\_\_\_\_\_  
Address as prequalified

\_\_\_\_\_  
Signature of Witness or Attest

By

\_\_\_\_\_  
Signature of Contractor

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Print or type Signer's name

*If Corporation, affix Corporate Seal*



Contract No. \_\_\_\_\_  
County \_\_\_\_\_

Rev. 4-19-11

## **CONTRACT PAYMENT BOND**

Attach certified copy of Power of Attorney to this sheet

**CITY OF MOUNT AIRY**

**CONTRACT PERFORMANCE BOND**

Date of Performance Bond Execution: \_\_\_\_\_

Name of Principal Contractor: \_\_\_\_\_

Name of Surety: \_\_\_\_\_

Name of Contracting Body: \_\_\_\_\_

Amount of Bond: \_\_\_\_\_

Contract ID No.: \_\_\_\_\_

County Name: \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL CONTRACTOR (hereafter, PRINCIPAL) and SURETY above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the Contracting Body, numbered as shown above and hereto attached:

NOW THEREFORE, if the principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the Contracting Body, with or without notice to the Surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bound parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Contract No. EB-5014  
County Surry

Rev. 11-1-12

## CONTRACT PERFORMANCE BOND

*Affix Seal of Surety Company*

\_\_\_\_\_  
Print or type Surety Company Name

By

\_\_\_\_\_  
Print, stamp or type name of Attorney-in-Fact

\_\_\_\_\_  
Signature of Attorney-in-Fact

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Address of Attorney-in-Fact

**CONTRACT PERFORMANCE BOND**

**CORPORATION**

SIGNATURE OF CONTRACTOR (Principal)

\_\_\_\_\_  
Full name of Corporation

\_\_\_\_\_  
Address as prequalified

By \_\_\_\_\_  
Signature of **President, Vice President, Assistant Vice President**  
*Select appropriate title*

\_\_\_\_\_  
Print or type Signer's name

*Affix Corporate Seal*

Attest \_\_\_\_\_  
Signature of **Secretary, Assistant Secretary**  
*Select appropriate title*

\_\_\_\_\_  
Print or type Signer's name

Contract No. \_\_\_\_\_  
County \_\_\_\_\_

Rev. 4-19-11

**CONTRACT PERFORMANCE BOND**

**LIMITED LIABILITY COMPANY**

SIGNATURE OF CONTRACTOR (Principal)

Name of Contractor

\_\_\_\_\_  
Full name of Firm

\_\_\_\_\_  
Address as prequalified

By:

\_\_\_\_\_  
Signature of **Member, Manager, Authorized Agent**  
*Select appropriate title*

\_\_\_\_\_  
Print or type Signer's name

Contract No. \_\_\_\_\_  
County \_\_\_\_\_

Rev. 4-19-11

**CONTRACT PERFORMANCE BOND**

**INDIVIDUAL DOING BUSINESS UNDER A FIRM NAME**

SIGNATURE OF CONTRACTOR (Principal)

Name of Contractor

\_\_\_\_\_  
Individual Name

Trading and doing business as

\_\_\_\_\_  
Full name of Firm

\_\_\_\_\_  
Address as prequalified

Signature of Contractor

\_\_\_\_\_  
Individually

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Print or type Signer's name

Contract No. \_\_\_\_\_  
County \_\_\_\_\_

Rev. 4-19-11

**CONTRACT PERFORMANCE BOND**  
**INDIVIDUAL DOING BUSINESS IN HIS OWN NAME**

SIGNATURE OF CONTRACTOR (Principal)

Name of Contractor \_\_\_\_\_  
Print or type Individual name

\_\_\_\_\_  
Address as prequalified

Signature of Contractor \_\_\_\_\_  
Individually

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Print or type Signer's name

Contract No. \_\_\_\_\_  
County \_\_\_\_\_

Rev. 4-19-11

**CONTRACT PERFORMANCE BOND**

**PARTNERSHIP**

SIGNATURE OF CONTRACTOR (Principal)

\_\_\_\_\_  
Full name of Partnership

\_\_\_\_\_  
Address as prequalified

By \_\_\_\_\_  
Signature of Partner

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Print or type Signer's name



**CONTRACT PERFORMANCE BOND**  
**JOINT VENTURE (2) OR (3)**  
SIGNATURE OF CONTRACTORS (Principal)

Instructions to Bidders: **2 Joint Ventures**, Fill in lines (1), (2) and (3) and execute. **3 Joint Venturers** Fill in lines (1), (2), (3), (4) and execute. On Line (1), print or type the name of Joint Venture. On line (2), print or type the name of one of the joint venturers and execute below in the appropriate manner required by Article 102-8 of the *NCDOT Standard Specifications*. On Line (3), print or type the name of second joint venturer and execute below in the appropriate manner required by said article of the Specifications. On Line (4), print or type the name of the third joint venturer, if applicable and execute below in the appropriate manner required by said article of the Specifications. This form of execution must be strictly followed.

(1) \_\_\_\_\_  
Name of Joint Venture

(2) \_\_\_\_\_  
Name of Contractor

\_\_\_\_\_  
Address as prequalified

\_\_\_\_\_  
Signature of Witness or Attest

By

\_\_\_\_\_  
Signature of Contractor

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Print or type Signer's name

*If Corporation, affix Corporate Seal*

and

(3) \_\_\_\_\_  
Name of Contractor

\_\_\_\_\_  
Address as prequalified

\_\_\_\_\_  
Signature of Witness or Attest

By

\_\_\_\_\_  
Signature of Contractor

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Print or type Signer's name

*If Corporation, affix Corporate Seal*

and

(4) \_\_\_\_\_  
Name of Contractor *(for 3 Joint Venture only)*

\_\_\_\_\_  
Address as prequalified

\_\_\_\_\_  
Signature of Witness or Attest

By

\_\_\_\_\_  
Signature of Contractor

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Print or type Signer's name

*If Corporation, affix Corporate Seal*

Contract No. \_\_\_\_\_  
County \_\_\_\_\_

Rev. 4-19-11

## **CONTRACT PERFORMANCE BOND**

Attach certified copy of Power of Attorney to this sheet

LISTING OF DBE SUBCONTRACTORS			Sheet _____ of _____	
Firm Name and Address	Item No.	Item Description	* Agreed upon Unit Price	** Dollar Volume of Item
<b>Name</b>  Address				
<b>Name</b>  Address				
<b>Name</b>  Address				
<b>Name</b>  Address				
<b>Name</b>  Address				
<b>Name</b>  Address				
<b>Name</b>  Address				

\* The Dollar Volume shown in this column shall be the Actual Price Agreed Upon by the Prime Contractor and the DBE subcontractor, and these prices will be used to determine the percentage of the DBE participation in the contract.

\*\* Dollar Volume of DBE Subcontractor Percentage of Total Contract Bid Price:

*If firm is a Material Supplier Only, show Dollar Volume as 60% of Agreed Upon Amount from Letter of Intent.*

*If firm is a Manufacturer, show Dollar Volume as 100% of Agreed Upon Amount from Letter of Intent.*

LISTING OF DBE SUBCONTRACTORS			Sheet _____ of _____	
Firm Name and Address	Item No.	Item Description	* Agreed upon Unit Price	** Dollar Volume of Item
<b>Name</b>  Address				
<b>Name</b>  Address				
<b>Name</b>  Address				
<b>Name</b>  Address				
<b>Name</b>  Address				
<b>Name</b>  Address				

\* The Dollar Volume shown in this column shall be the Actual Price Agreed Upon by the Prime Contractor and the DBE subcontractor, and these prices will be used to determine the percentage of the DBE participation in the contract.

\*\* Dollar Volume of DBE Subcontractor \$ \_\_\_\_\_

Percentage of Total Contract Bid Price  
\_\_\_\_\_ %

\*\* Dollar Volume of DBE Subcontractor Percentage of Total Contract Bid Price:

*If firm is a Material Supplier Only, show Dollar Volume as 60% of Agreed Upon Amount from Letter of Intent.*

*If firm is a Manufacturer, show Dollar Volume as 100% of Agreed Upon Amount from Letter of Intent.*

**EXECUTION OF BID  
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION**

**CORPORATION**

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

*N.C.G.S. § 133-32* and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

**SIGNATURE OF CONTRACTOR**

\_\_\_\_\_  
Full name of Corporation

\_\_\_\_\_  
Address as Prequalified

Attest \_\_\_\_\_

Secretary/Assistant Secretary  
*Select appropriate title*

By \_\_\_\_\_

President/Vice President/Assistant Vice President  
*Select appropriate title*

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Print or type Signer's name

**CORPORATE SEAL**

**AFFIDAVIT MUST BE NOTARIZED**

Subscribed and sworn to before me this the

\_\_\_\_\_ day of \_\_\_\_\_ 20\_\_.

**NOTARY SEAL**

\_\_\_\_\_  
Signature of Notary Public

of \_\_\_\_\_ County

State of \_\_\_\_\_

My Commission Expires: \_\_\_\_\_

**EXECUTION OF BID  
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION**

**PARTNERSHIP**

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

*N.C.G.S. § 133-32* and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

**SIGNATURE OF CONTRACTOR**

\_\_\_\_\_  
Full Name of Partnership

\_\_\_\_\_  
Address as Prequalified

By

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Signature of Partner

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Print or type Signer's name

**AFFIDAVIT MUST BE NOTARIZED**

Subscribed and sworn to before me this the

**NOTARY SEAL**

\_\_\_\_ day of \_\_\_\_\_ 20\_\_.

\_\_\_\_\_  
Signature of Notary Public

of \_\_\_\_\_ County

State of \_\_\_\_\_

My Commission Expires: \_\_\_\_\_

**EXECUTION OF BID  
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION  
LIMITED LIABILITY COMPANY**

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

*N.C.G.S. § 133-32* and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

**SIGNATURE OF CONTRACTOR**

\_\_\_\_\_  
Full Name of Firm

\_\_\_\_\_  
Address as Prequalified

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Signature of Member/Manager/Authorized Agent  
*Select appropriate title*

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Print or type Signer's Name

**AFFIDAVIT MUST BE NOTARIZED**

Subscribed and sworn to before me this the

**NOTARY SEAL**

\_\_\_\_\_ day of \_\_\_\_\_ 20\_\_.

\_\_\_\_\_  
Signature of Notary Public

of \_\_\_\_\_ County

State of \_\_\_\_\_

My Commission Expires: \_\_\_\_\_

**EXECUTION OF BID  
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN  
CERTIFICATION**

**JOINT VENTURE (2) or (3)**

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating N.C.G.S. § 133-24 within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

**SIGNATURE OF CONTRACTOR**

Instructions: **2 Joint Venturers** Fill in lines (1), (2) and (3) and execute. **3 Joint Venturers** Fill in lines (1), (2), (3) and (4) and execute. On Line (1), fill in the name of the Joint Venture Company. On Line (2), fill in the name of one of the joint venturers and execute below in the appropriate manner. On Line (3), print or type the name of the other joint venturer and execute below in the appropriate manner. On Line (4), fill in the name of the third joint venturer, if applicable and execute below in the appropriate manner.

(1) \_\_\_\_\_  
Name of Joint Venture

(2) \_\_\_\_\_  
Name of Contractor

---

Address as Prequalified

\_\_\_\_\_  
Signature of Witness or Attest

By \_\_\_\_\_  
Signature of Contractor

\_\_\_\_\_  
Print or type Signer's name

*If Corporation, affix Corporate Seal* and

(3) \_\_\_\_\_  
Name of Contractor

---

Address as Prequalified

\_\_\_\_\_  
Signature of Witness or Attest

By \_\_\_\_\_  
Signature of Contractor

\_\_\_\_\_  
Print or type Signer's name

*If Corporation, affix Corporate Seal* and

(4) \_\_\_\_\_  
Name of Contractor (for 3 Joint Venture only)

---

Address as Prequalified

\_\_\_\_\_  
Signature of Witness or Attest

By \_\_\_\_\_  
Signature of Contractor

\_\_\_\_\_  
Print or type Signer's name

*If Corporation, affix Corporate Seal*

*NOTARY SEAL*

*Affidavit must be notarized for Line (2)*

Subscribed and sworn to before me this  
day of \_\_\_\_\_ 20\_\_\_\_

Signature of Notary Public  
of \_\_\_\_\_ County

State of \_\_\_\_\_

My Commission Expires: \_\_\_\_\_

*NOTARY SEAL*

*Affidavit must be notarized for Line (3)*

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

Signature of Notary Public  
of \_\_\_\_\_ County \_\_\_\_\_

State of \_\_\_\_\_

My Commission Expires: \_\_\_\_\_

*NOTARY SEAL*

*Affidavit must be notarized for Line (4)*

Subscribed and sworn to before me this  
day of \_\_\_\_\_ 20\_\_\_\_

Signature of Notary Public  
of \_\_\_\_\_ County

State of \_\_\_\_\_

My Commission Expires: \_\_\_\_\_



**EXECUTION OF BID  
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION**

**INDIVIDUAL DOING BUSINESS UNDER A FIRM NAME**

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

*N.C.G.S. § 133-32* and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

**SIGNATURE OF CONTRACTOR**

Name of Contractor

\_\_\_\_\_  
Individual name

Trading and doing business as

\_\_\_\_\_  
Full name of Firm

\_\_\_\_\_  
Address as Prequalified

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Signature of Contractor, Individually

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Print or type Signer's name

**AFFIDAVIT MUST BE NOTARIZED**

Subscribed and sworn to before me this the

**NOTARY SEAL**

\_\_\_\_ day of \_\_\_\_\_ 20\_\_.

\_\_\_\_\_  
Signature of Notary Public

of \_\_\_\_\_ County

State of \_\_\_\_\_

My Commission Expires: \_\_\_\_\_

**EXECUTION OF BID**  
**NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION**  
**INDIVIDUAL DOING BUSINESS IN HIS OWN NAME**

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

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**SIGNATURE OF CONTRACTOR**

Name of Contractor \_\_\_\_\_  
 \_\_\_\_\_  
 Print or type Individual name

\_\_\_\_\_  
 Address as Prequalified

\_\_\_\_\_  
 Signature of Contractor, Individually

\_\_\_\_\_  
 Print or type Signer's Name

\_\_\_\_\_  
 Signature of Witness

\_\_\_\_\_  
 Print or type Signer's name

**AFFIDAVIT MUST BE NOTARIZED**

Subscribed and sworn to before me this the

**NOTARY SEAL**

\_\_\_\_\_ day of \_\_\_\_\_ 20\_\_.

\_\_\_\_\_  
 Signature of Notary Public

of \_\_\_\_\_ County

State of \_\_\_\_\_

My Commission Expires: \_\_\_\_\_

## DEBARMENT CERTIFICATION

### Conditions for certification:

1. The prequalified bidder shall provide immediate written notice to the Municipality if at any time the bidder learns that his certification was erroneous when he submitted his debarment certification or explanation filed with the Municipality, or has become erroneous because of changed circumstances.
2. The terms *covered transaction*, *debarred*, *suspended*, *ineligible*, *lower tier covered transaction*, *participant*, *person*, *primary covered transaction*, *principal*, *proposal*, and *voluntarily excluded*, as used in this provision, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. A copy of the Federal Rules requiring this certification and detailing the definitions and coverages may be obtained from the Municipality project representative.
3. The prequalified bidder agrees by submitting this form, that he will not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in Municipal contracts, unless authorized by the Municipality.
4. For Federal Aid projects, the prequalified bidder further agrees that by submitting this form he will include the Federal-Aid Provision titled *Required Contract Provisions Federal-Aid Construction Contract (Form FHWA PR 1273)* provided by the Municipality, without subsequent modification, in all lower tier covered transactions.
5. The prequalified bidder may rely upon a certification of a participant in a lower tier covered transaction that he is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless he knows that the certification is erroneous. The bidder may decide the method and frequency by which he will determine the eligibility of his subcontractors.
6. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this provision. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
7. Except as authorized in paragraph 6 herein, the Municipality may terminate any contract if the bidder knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available by the Federal Government.

**DEBARMENT CERTIFICATION**

The prequalified bidder certifies to the best of his knowledge and belief, that he and his principals:

- a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements; or receiving stolen property;
- c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph b. of this certification; and
- d. Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- e. Will submit a revised Debarment Certification immediately if his status changes and will show in his bid proposal an explanation for the change in status.

If the prequalified bidder cannot certify that he is not debarred, he shall provide an explanation with this submittal. An explanation will not necessarily result in denial of participation in a contract.

Failure to submit a non-collusion affidavit and debarment certification will result in the prequalified bidder's bid being considered non-responsive.

☐

Check here if an explanation is attached to this certification.

## LETTER OF INTENT TO PERFORM AS A SUBCONTRACTOR

<b>CONTRACT:</b>	<b>NAME OF BIDDER:</b>
------------------	------------------------

The undersigned intends to perform work in connection with the above contract upon execution of the bid and subsequent award of contract by the Local Public Agency as:

Name of MBE/WBE/DBE Subcontractor \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Please check all that apply:  
Minority Business Enterprise (MBE) \_\_\_\_\_  
Women Business Enterprise (WBE) \_\_\_\_\_  
Disadvantaged Business Enterprise (DBE) \_\_\_\_\_

The MBE /WBE /DBE status of the above named subcontractor is certified by the North Carolina Department of Transportation. The above named subcontractor is prepared to perform the described work listed on the attached MBE/WBE/DBE Commitment Items sheet, in connection with the above contract upon execution of the bid and subsequent award of contract by the Local Public Agency. The above named subcontractor is prepared to perform the described work at the estimated Commitment Total for Subcontractor Price identified on the MBE/WBE/DBE Commitment Items sheet and amount indicated below.

Commitment Total based on estimated Unit Prices and Quantities on the “attached” MBE/WBE/DBE Commitment Items sheet:

Amount \$ \_\_\_\_\_

The above named bidder and subcontractor mutually accepts the Commitment Total estimated for the Unit Prices and Quantities. This commitment total is based on estimated quantities only and most likely will vary up or down as the project is completed. Final compensation will be based on actual quantities of work performed and accepted during the pursuance of work. The above listed amount represents the entire dollar amount quoted based on these estimated quantities. No conversations, verbal agreements, and/or other forms of non-written representations shall serve to add, delete, or modify the terms as stated.

This document shall not serve in any manner as an actual subcontract between the two parties. A separate subcontractor agreement will describe in detail the contractual obligations of the bidder and the MBE/WBE/DBE subcontractor.

### **Affirmation**

The above named MBE/ WBE/ DBE subcontractor affirms that it will perform the portion(s) of the contract for the estimated dollar value as stated above.

<b>Name of MBE/ WBE/ DBE Subcontractor</b>	<b>Name of Bidder</b>
<b>Signature / Title</b>	<b>Signature / Title</b>
<b>Date</b>	<b>Date</b>

PROPOSAL

**TO: THE MAYOR AND CITY COUNCIL OF MOUNT AIRY, NORTH CAROLINA**

**FROM: BIDDER**\_\_\_\_\_

**ADDRESS**\_\_\_\_\_

\_\_\_\_\_

**DATE OF BID:**\_\_\_\_\_, 2014

The undersigned hereby signifies that it is \_\_\_\_ (his/their) intention and purpose to enter into a formal Contract with the CITY OF MOUNT AIRY, N.C. to furnish all labor, materials, tools, equipment, apparatus, supplies, etc., required and to do all the work necessary for and because of the construction, erection, and/or installation of the proposed

**LOVILLS CREEK & ARARAT RIVER GREENWAY  
NCDOT TIP: EB-5014**

for the CITY OF MOUNT AIRY in accordance with the Consulting Engineers' Specifications; the terms of the **Notice to Bidders** (copy of which is bound herein); the foregoing Instructions to Bidders, General Conditions and Specifications; this Proposal; the following forms of Contract and Bonds; and the Plans and/or Drawings, including Addenda Nos. \* \_\_\_\_\_; and pursuant with the requirements of the Notice and Instructions to Bidders. There is deposited, herewith, cash, a certified check in the amount of: \_\_\_\_\_

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_),  
or a Bid Bond in the amount of five percent of the total aggregate amount of this Bid made payable to the City Manager and Council of the CITY OF MOUNT AIRY, the same to be refunded to the undersigned under the conditions of and in accordance with the terms of this Proposal which are as follows:

\* Fill in appropriate Addenda number.

**THAT:** The undersigned has carefully examined the Plans and Specifications and all other Contract Documents and fully understands them.

**THAT:** The undersigned has carefully examined the site of the Project and is familiar with the conditions under which the work, or any part thereof, is to be performed and the conditions which must be fulfilled in furnishing and/or installing, erecting or constructing any or all items of the Project.

**THAT:** The undersigned will provide all necessary tools, machinery, equipment, apparatus, and all other means necessary to do all the work and will furnish all labor, materials and all else required to complete such Contract as may be entered into, in the manner prescribed in and in accordance with the terms of the Specifications and Contract and in accordance with the true intent and meaning thereof, and in accordance with the Plans and/or Drawings and the requirements of the Engineer under them, in a first class manner.

**THAT:** The rights of the Owner and the recommendations of the Engineer are not to be questioned in the Award of Contracts.

**THAT:** It is the intention of the City Manager and Council to let Contracts on a basis of the Bids received in accordance with GS 143-129 and in such manner as they may deem to be for the best interests of the Owner.

**THAT:** The Owner reserves the right to reject any or all Proposals.

**THAT:** The Contract is to be awarded to the lowest responsible, responsive bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents, is judged to be reasonable, and does not exceed the funds available. .

**THAT:** On being awarded the Contract, the undersigned will execute a Performance Bond and a Payment Bond, on the forms included herein, each equal to one hundred percent of the Contract price, as security for the faithful performance of the Contract.

**THAT:** The undersigned shall submit, in the blank spaces provided, all data efficiencies, guarantees, and other information called for.

**THAT:** The undersigned shall submit, herewith, Drawings or Cuts and Specifications showing and describing in detail the equipment, material, and/or apparatus which the undersigned proposes to furnish.

**THAT:** This Proposal shall be signed and submitted in the manner prescribed in the Instructions to Bidders.

**THAT:** Should this Proposal not be accepted by the City Manager and Council of the CITY OF MOUNT AIRY, the certified check, in the amount of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) or the five percent Bid Bond, deposited herewith will be returned to the undersigned.

**THAT:** Should the Owner accept this Proposal and the undersigned fail or neglect to execute the Contract and furnish the required Bonds within fifteen days after receiving notifications of the acceptance of the Proposal and/or receipt of the formal Contract and Bond forms, the cash or certified check, in the amount of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) or the Bid Bond deposited herewith shall be retained by the Owner as liquidated damages, it being understood that the Owner reserves the right to extend the time allowed for executing the Contract and/or furnishing the Bond.

**THAT:** The undersigned will complete such Contract as may be entered into within the number of consecutive calendar days specified in the Contract from the date specified in the Notice to Proceed.

**THAT:** The undersigned proposes to enter into a Contract in accordance with this Proposal and the Contract Documents included herein, for the price, or prices, shown on the following pages. Bidder acknowledges that the following quantities are approximate only and are given as the basis for comparison of Bids. The Owner may increase or decrease the quantity of any item or portion of the work as may be deemed necessary or expedient. An increase or decrease in the quantity of any item will not be regarded as sufficient grounds for an increase or decrease in the unit prices, nor in the time allowed for the completion of the work, except as provided for in the General and Supplemental Conditions.

**THE FOLLOWING FORMS AND DOCUMENTATION SHALL BE COMPLETELY FILLED OUT AND SUBMITTED WITH THE BIDS.**

1. Proposal
2. Certified List of Material Manufacturers
3. Certification Affidavit
4. Contractor's Certificates Affidavit of Organization and Authority and Sworn Statement
5. Non-Discrimination Clause
6. E-Verify Affidavit
7. Acknowledgement
8. Notice To Contractor Regarding Intrusions Beyond Project Limits
9. Execution of Bid-Non-Collusion Affidavit, Debarment Certification and Gift Ban Certification
10. Listing of DBE Subcontractors
11. Execution of Bid (Non-collusion affidavit, debarment certification, and gift ban certification)

**CITY OF MOUNT AIRY  
BID FORM**

**TIP No: EB-5014**

**Date:** \_\_\_\_\_

**County: SURRY**

**Description: LOVILLS CREEK & ARARAT RIVER GREENWAY**

**BID FOR UNIT PRICE CONTRACT**

Bidder agrees to perform all work described in the specifications and shown on the Contract Drawings for the unit prices listed below.

Line #	Item #	Sec #	Description	Quantity	Units	Unit Cost	Total Amount
1	0000100000-N	800	MOBILIZATION	1	LS	\$	\$
2	0000400000-N	801	CONSTRUCTION SURVEYING	1	LS	\$	\$
3	0000900000-N	SP	GENERIC MISCELLANEOUS ITEM (RELOCATE TRASH CAN & SIGN)	1	LS	\$	\$
4	0000915000-N	SP	GENERIC MISCELLANEOUS ITEM (HINGED BOLLARD)	6	EA	\$	\$
5	0000915000-N	SP	GENERIC MISCELLANEOUS ITEM (PERMANENT WOOD BOLLARD)	12	EA	\$	\$
6	0000915000-N	SP	GENERIC MISCELLANEOUS ITEM (TRUNCATED DOME PAVERS, 2' x 8')	4	EA	\$	\$
7	0043000000-N	226	GRADING	1	LS	\$	\$
8	0057000000-E	226	UNDERCUT EXCAVATION	800	CY	\$	\$
9	0156000000-E	250	REMOVAL OF EXISTING ASPHALT PAVEMENT	156	SY	\$	\$
10	0194000000-E	SP	SELECT GRANULAR MATERIAL, CLASS III	100	CY	\$	\$
11	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZATION	1300	SY	\$	\$
12	0241000000-E	SP	GENERIC GRADING ITEM (GEOTEXTILE SEPERATOR FABRIC)	13300	SY	\$	\$
13	0366000000-E	310	15" RC PIPE CULVERTS, CLASS III	32	LF	\$	\$
14	0372000000-E	310	18" RC PIPE CULVERTS, CLASS III	130	LF	\$	\$
15	0378000000-E	310	24" RC PIPE CULVERTS, CLASS III	131	LF	\$	\$
16	0384000000-E	310	30" RC PIPE CULVERTS, CLASS III	112	LF	\$	\$
17	0396000000-E	310	42" RC PIPE CULVERTS, CLASS III	40	LF	\$	\$
18	0986000000-E	SP	GENERIC PIPE ITEM (6" PVC SCUPPER DRAIN)	335	LF	\$	\$



Line #	Item #	Sec #	Description	Quantity	Units	Unit Cost	Total Amount
19	1077000000-E	SP	#57 STONE	50	TON	\$	\$
20	1121000000-E	520	AGGREGATE BASE COURSE	6200	TON	\$	\$
21	1519000000-E	610	ASPHALT CONC SURFACE COURSE,TYPE S9.5B	1150	TON	\$	\$
22	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	70	TON	\$	\$
23	2220000000-E	838	REINFORCED ENDWALLS	2	CY	\$	\$
24	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	3	EA	\$	\$
25	2738000000-E	SP	GENERIC PAVING ITEM (4.5" CONCRETE SIDEWALK W/ FOOTING)	2350	SY	\$	\$
26	2759000000-N	SP	GENERIC PAVING ITEM (REMOVE EXISTING BOLLARDS)	2	EA	\$	\$
27	2759000000-N	SP	GENERIC PAVING ITEM (STANDARD BIKE RACK)	3	EA	\$	\$
28	2830000000-N	858	ADJUSTMENT OF MANHOLES	2	EA	\$	\$
29	3030000000-E	862	STEEL BM GUARDRAIL	156	LF	\$	\$
30	3045000000-E	862	STEEL BM GUARDRAIL, SHOPCURVED	50	LF	\$	\$
31	3195000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE AT-1	1	EA	\$	\$
32	3270000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350	1	EA	\$	\$
33	3575000000-E	SP	GENERIC FENCING ITEM (WHITE VINYL FENCE)	822	LF	\$	\$
34	3575000000-E	SP	GENERIC FENCING ITEM (SPLIT RAIL FENCE)	1015	LF	\$	\$
35	3628000000-E	876	RIP RAP, CLASS I	11	TON	\$	\$
36	3649000000-E	876	RIP RAP, CLASS B	326	TON	\$	\$
37	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	222	SY	\$	\$
38	4025000000-E	901	CONTRACTOR FURNISHED, TYPE "E" SIGN	49	SF	\$	\$
39	4072000000-E	903	SUPPORTS, 3-LB STEEL U-CHANNEL	128	LF	\$	\$
40	4102000000-N	904	SIGN ERECTION, TYPE E	14	EA	\$	\$
41	4399000000-N	1105	TEMPORARY TRAFFIC CONTROL	1	LS	\$	\$
42	4590000000-E	1205	GENERIC TRAFFIC CONTROL ITEM (THERMOPLASTIC PAVEMENT MARKING LINES (6", 240 MILS))	15	LF	\$	\$

Line #	Item #	Sec #	Description	Quantity	Units	Unit Cost	Total Amount
43	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	178	LF	\$	\$
44	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	1290	LF	\$	\$
45	4840000000-N	1205	PAINT PAVEMENT MARKING CHARACTER	8	EA	\$	\$
46	4855000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (6")	105	LF	\$	\$
47	4870000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (24")	40	LF	\$	\$
48	5882000000-N	SP	GENERIC UTILITY ITEM (INSTALL NEW SAN SEWER MANHOLE RIM CASTING)	5	EA	\$	\$
49	6000000000-E	1605	TEMPORARY SILT FENCE	11,400	LF	\$	\$
50	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	100	TON	\$	\$
51	6015000000-E	1615	TEMPORARY MULCHING	10	ACR	\$	\$
52	6036000000-E	1631	MATting FOR EROSION CONTROL	400	SY	\$	\$
53	6084000000-E	1660	SEEDING & MULCHING	10	ACR	\$	\$
54	6131000000-E	SP	GENERIC EROSION CONTROL ITEM (TEMPORARY SEEDING)	10	ACR	\$	\$
55	6132000000-N	SP	GENERIC EROSION CONTROL ITEM (GRAVEL CONSTRUCTION ENTRANCE)	5	EA	\$	\$
56	6132000000-N	SP	GENERIC EROSION CONTROL ITEM (TEMPORARY ROCK DAM)	2	EA	\$	\$
57	6132000000-N	SP	GENERIC EROSION CONTROL ITEM (ROCK PIPE INLET PROTECTION)	9	EA	\$	\$
58	6147000000-E	SP	GENERIC EROSION CONTROL ITEM (SPECIAL SEDIMENT CONTROL FENCE)	170	LF	\$	\$
59	6147000000-E	SP	GENERIC EROSION CONTROL ITEM (ORANGE SAFETY FENCE)	650	LF	\$	\$
60	6150000000-E	SP	GENERIC EROSION CONTROL ITEM (STONE FOR EROSION CONTROL, CLASS I)	22	TON	\$	\$
61	7048500000-E	1705	PEDESTRIAN SIGNAL HEAD (16", 1 SECTION W/ COUNTDOWN)	2	EA	\$	\$
62	7060000000-E	1705	SIGNAL CABLE	400	LF	\$	\$
63	7120000000-E	1705	VEHICLE SIGNAL HEAD (12", 3 SECTION)	1	EA	\$	\$
64	7300000000-E	1715	UNPAVED TRENCHING (1, 2")	20	LF	\$	\$
65	7300000000-E	1715	UNPAVED TRENCHING (2, 2")	55	LF	\$	\$
66	7324000000-N	1716	JUNCTION BOX (STANDARD SIZE)	3	EA	\$	\$

Line #	Item #	Sec #	Description	Quantity	Units	Unit Cost	Total Amount
67	7420000000-E	1722	2" RISER WITH WEATHERHEAD	2	EA	\$	\$
68	7444000000-E	1725	INDUCTIVE LOOP SAWCUT	395	LF	\$	\$
69	7456000000-E	1726	LEAD-IN CABLE (14-2)	750	LF	\$	\$
70	7642200000-N	1743	TYPE II PEDESTAL WITH FOUNDATION	2	EA	\$	\$
71	7686000000-N	1752	CONDUIT ENTRANCE INTO EXISTING FOUNDATION	3	EA	\$	\$
72	7780000000-N	1751	DETECTOR CARD (TYPE 2070L)	1	EA	\$	\$
73	8105560000-E	411	4'-0" DIA DRILLED PIERS IN SOIL	40	LF	\$	\$
74	8105660000-E	411	4'-0" DIA DRILLED PIERS NOT IN SOIL	24	LF	\$	\$
75	8112730000-N	450	PDA TESTING	3	EA	\$	\$
76	8364000000-E	450	HP12X53 STEEL PILES	180	LF	\$	\$
77	8391000000-N	450	STEEL PILE POINTS	6	EA	\$	\$
78	8802014000-E	SP	SOLDIER PILE RETAINING WALLS	192	SF	\$	\$
79	8802030000-E	SP	SEGMENTAL GRAVITY RETAINING WALLS	620	SF	\$	\$
80	8847000000-E	SP	GENERIC RETAINING WALL ITEM (RETAINING WALL 2 AT STA. 70+20)	630	SF	\$	\$
81	8847000000-E	SP	GENERIC RETAINING WALL ITEM (RETAINING WALL 4 AT STA. 91+25)	320	SF	\$	\$
82	8860000000-N	SP	GENERIC STRUCTURE ITEM (LS) (PREFABRICATED BRIDGE, 80')	1	LS	\$	\$
83	8860000000-N	SP	GENERIC STRUCTURE ITEM (LS) (80' BRIDGE SUBSTRUCTURE)	1	LS	\$	\$
84	8860000000-N	SP	GENERIC STRUCTURE ITEM (LS) (80' BRIDGE CONCRETE DECK)	1	LS	\$	\$
85	8860000000-N	SP	GENERIC STRUCTURE ITEM (LS) (80' BRIDGE ERECTION)	1	LS	\$	\$
86	8860000000-N	SP	GENERIC STRUCTURE ITEM (LS) (PREFABRICATED BRIDGE, 50')	1	LS	\$	\$
87	8860000000-N	SP	GENERIC STRUCTURE ITEM (LS) (50' BRIDGE SUBSTRUCTURE)	1	LS	\$	\$
88	8860000000-N	SP	GENERIC STRUCTURE ITEM (LS) (50' BRIDGE CONCRETE DECK)	1	LS	\$	\$
89	8860000000-N	SP	GENERIC STRUCTURE ITEM (LS) (50' BRIDGE ERECTION)	1	LS	\$	\$
90	8860000000-N	SP	GENERIC STRUCTURE ITEM (LS) (RAILROAD CANOPY)	1	LS	\$	\$
91	8867000000-E	SP	GENERIC STRUCTURE ITEM (LF) (BOARDWALK 10 FOOT SPANS)	260	LF	\$	\$

Line #	Item #	Sec #	Description	Quantity	Units	Unit Cost	Total Amount
92	8867000000-E	SP	GENERIC STRUCTURE ITEM (LF) (BOARDWALK 20 FOOT SPANS)	40	LF	\$	\$
93	8867000000-E	SP	GENERIC STRUCTURE ITEM (LF) (BOARDWALK POSTS 7.5" MIN. TIP DIAMETER)	1542	LF	\$	\$
94	8897000000-N	SP	GENERIC STRUCTURE ITEM (EA) (CONCRETE APPROACH)	6	EA	\$	\$
95	8897000000-N	SP	GENERIC STRUCTURE ITEM (DECORATIVE BRIDGE COLUMN)	4	EA	\$	\$
96	8897000000-N	SP	GENERIC STRUCTURE ITEM (EA)(HELICAL ANCHOR)	10	EA	\$	\$

**TOTAL BASE BID:** \$\_\_\_\_\_

ALTERNATE BID ITEM #1: PILE & PANEL WALL SUBSTITUTE							
78	8802014000-E	SP	SOLDIER PILE RETAINING WALLS	-192	SF	\$	\$
97	8802040000-E	SP	CIP GRAVITY RETAINING WALLS	192	SF	\$	\$
						SUBTOTAL, ALTERNATE #1 BID:	\$

**TOTAL BASE BID PLUS ALTERNATE #1:** \$\_\_\_\_\_

ADDITIVE ALTERNATE BID ITEM #1: PROVIDE CENTERLINE PAVEMENT MARKINGS FOR ENTIRE GREENWAY							
98	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	2750	LF	\$	\$

**TOTAL ADDITIVE ALTERNATE #1 BID ONLY:** \$\_\_\_\_\_

ADDITIVE ALTERNATE BID ITEM #2: PROVIDE GRANITE MILE MARKERS							
99	0000915000-N	SP	GENERIC MISCELLANEOUS ITEM (GRANITE MILE MARKERS)	9	EA	\$	\$

**TOTAL ADDITIVE ALTERNATE #2 BID ONLY:** \$\_\_\_\_\_

Contractor \_\_\_\_\_  
(Print)

Note: Proposal signature required on Page \_\_\_\_\_

## CERTIFIED LIST OF MATERIAL MANUFACTURERS

The Bidder, \_\_\_\_\_, as part of the procedure for the submission of Bids on this project known as LOVILLS CREEK & ARARAT RIVER GREENWAY, submits the following list of Material Manufacturers to be used in the performance of work to be done on said Project. The list of Manufacturers and all materials furnished shall be based on requirements of the Contract Documents. Changes to this list after the Bid opening shall only be as approved by the Owner upon request by the Contractor or as required by the Owner based upon review of Contractor's submittals:

MATERIALS		MANUFACTURER/SUPPLIER
Treated Timber		
Prefabricated Bridge		
Asphalt		

It is understood and agreed that, if awarded a Contract, the Contractor will not make any additions, deletions or substitutions to this Certified list without the consent of the Owner.

## CERTIFIED LIST OF SUBCONTRACTORS

The Bidder, \_\_\_\_\_, as part of the procedure for the submission of Bids on this project known as LOVILLS CREEK & ARARAT RIVER GREENWAY, submits the following list of Subcontractors to be used in the performance of work to be done on said Project. The list of Subcontractors shall be based on requirements of the Contract Documents. Changes to this list after the Bid opening shall only be as approved by the Owner upon request by the Contractor or as required by the Owner based upon review of Contractor's submittals:

ITEM		SUBCONTRACTOR
Boardwalk		
Bridge Foundation		
Asphalt Paving		

It is understood and agreed that, if awarded a Contract, the Contractor will not make any additions, deletions or substitutions to this Certified list without the consent of the Owner.

## CERTIFICATION AFFIDAVIT

THE PRIOR INFORMATION IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF. I FURTHER UNDERSTAND AND AGREE THAT, IF AWARDED A CONTRACT, THIS CERTIFICATION SHALL BE ATTACHED THERETO AND BECOME A PART THEREOF.

NAME OF SIGNER: \_\_\_\_\_  
(Please Print or Type)

TITLE OF SIGNER: \_\_\_\_\_  
(Please Print or Type)

SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_

### **BID SECURITY:**

Accompanying this Proposal is a (a) \_\_\_\_\_ in the amount of (b) \$ \_\_\_\_\_.

- NOTE: (a) Insert the words "bank draft", "certified check", "bid bond" as the case may be.  
(b) Amount must be equal to at least five percent of the Total Base Bid.

### **CONTRACTOR'S LICENSE:**

The undersigned certifies that (he/they) \_\_\_\_\_ (is/are) licensed as a Contractor under the specific State law regulating \_\_\_\_\_ (his/their) particular trade and that the number of \_\_\_\_\_ (his/their) license, under which (he/they) \_\_\_\_\_ (is/are) now operating is \_\_\_\_\_.

### **LIQUIDATED DAMAGES:**

The undersigned agrees, further, that the Owner may retain those amounts indicated below from the amount of Compensation due the undersigned, under the terms of the Contract, for each and every day that the work remains incomplete beyond the completion date specified in the Notice to Proceed. This amount is agreed upon as the proper measure of liquidated damages the Owner will sustain, per day, by the failure of the undersigned to complete the work, within the stipulated time, and it is not to be construed, in any sense, as a penalty.

Total  
Liquidated  
Damages  
\$600 per day

No Contractor shall have a claim against the Owner as a result of other construction Contractor's lack of progress or project completion.

**PROPOSAL SIGNATURE:** (Signature required on Page\_\_\_)

**CORPORATION:**

The Bidder is a corporation organized and existing under the laws of the State of \_\_\_\_\_, which operates under the legal name of:

\_\_\_\_\_

and the full names of its officers are as follows:

President \_\_\_\_\_

Secretary/Treasurer \_\_\_\_\_

Manager \_\_\_\_\_

and it does have a corporate seal. The President is authorized to sign construction proposals and contracts for the company by action of its Board of Directors taken \_\_\_\_\_, a certified copy of which is hereto attached. (Strike out this last sentence if not applicable.)

**PARTNERSHIP:**

The Bidder is a partnership consisting of individual partners whose full names are as follows:


The partnership does business under the legal name of:

\_\_\_\_\_

**INDIVIDUAL:**

The Bidder is an individual whose full name is:\_\_\_\_\_

and if operating under a trade name, said trade name is as follows: \_\_\_\_\_



**LIMITED LIABILITY CORPORATION:**

The Bidder is a Limited Liability Corporation (LLC) organized and existing under the laws of the State of \_\_\_\_\_  
which operates under the legal name of:

\_\_\_\_\_

and the full names of its managers, directors, or executives are as follows:

Manager

\_\_\_\_\_

Manager

\_\_\_\_\_

Manager

\_\_\_\_\_

Manager

\_\_\_\_\_

Registered Office address:

\_\_\_\_\_

Registered Agent's name:

\_\_\_\_\_

The manager, director, or executive is authorized to sign the construction proposal and contract for the company as outlined in its Operating Agreement dated \_\_\_\_\_  
a certified copy of which is hereto attached. (Strike out this last sentence if not applicable.)

---

(Sign Below)

Dated \_\_\_\_\_, 2014.

\_\_\_\_\_  
Legal Entity

(Sign Here) By: \_\_\_\_\_

\_\_\_\_\_  
(Printed Name)

SEAL - if Corporation

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 2014.

\_\_\_\_\_  
Notary Public

My Commission Expires:

\_\_\_\_\_

**CONTRACTOR'S CERTIFICATES**  
**AFFIDAVIT OF ORGANIZATION AND AUTHORITY**  
**AND**  
**SWORN STATEMENT**

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

\_\_\_\_\_ being the first duly sworn on oath deposes and says that the bidder on the attached bid proposal is organized as indicated below and that all statements herein made are made on behalf of such Bidder and that this deponent is authorized to make them.

(Fill Out Applicable Paragraph)

**1. CORPORATION:**

The Bidder is a Corporation organized and existing under the laws of the State of \_\_\_\_\_ and its President is \_\_\_\_\_; its Secretary is \_\_\_\_\_, and it does have a corporate seal. The President is authorized to sign construction contracts and bids for the company by action of its Board of Directors taken \_\_\_\_\_ a certified copy of which is hereto attached. (Strike out last sentence if not applicable.)

**2. PARTNERSHIP:**

The Bidder is a partnership consisting of \_\_\_\_\_ and \_\_\_\_\_, partners doing business under the name of: \_\_\_\_\_

**3. SOLE TRADER:**

The Bidder is an individual and if operating under a trade name, such trade name is as follows: \_\_\_\_\_

**4. ADDRESS:**

The business address of the Bidder is as follows: \_\_\_\_\_

Its phone number is \_\_\_\_\_

Bidder \_\_\_\_\_

By: \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_ day of \_\_\_\_\_, 2014.

\_\_\_\_\_  
Notary Public Co. \_\_\_\_\_

My Commission Expires: \_\_\_\_\_

STATE OF NORTH CAROLINA

**CITY OF MOUNT AIRY E-VERIFY AFFIDAVIT**

CITY OF MOUNT AIRY

\*\*\*\*\*

I, \_\_\_\_\_ (the individual attesting below), being duly authorized by and on behalf of  
\_\_\_\_\_ (the entity bidding on project hereinafter "Employer") after first being duly  
sworn hereby swears or affirms as follows:

1. Employer understands that E-Verify is the federal E-Verify program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hired employees pursuant to federal law in accordance with NCGS §64-25(5).
2. Employer understands that Employers Must Use E-Verify. Each employer, after hiring an employee to work in the United States, shall verify the work authorization of the employee through E-Verify in accordance with NCGS§64-26(a).
3. Employer is a person, business entity, or other organization that transacts business in this State and that employs 25 or more employees in this State. (mark Yes or No)
  - a. YES \_\_\_\_\_, or
  - b. NO \_\_\_\_\_
4. Employer's subcontractors comply with E-Verify, and if Employer is the winning bidder on this project Employer will ensure compliance with E-Verify by any subcontractors subsequently hired by Employer.  
This \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Signature of Affiant  
Print or Type Name: \_\_\_\_\_

State of \_\_\_\_\_ County of \_\_\_\_\_

Signed and sworn to (or affirmed) before me, this the \_\_\_\_  
day of \_\_\_\_\_, 2013.

My Commission Expires: \_\_\_\_\_

\_\_\_\_\_  
Signature of Notary      Printed Name of Notary

(Affix Official/Notarial Seal)

STATE OF \_\_\_\_\_, ACKNOWLEDGMENT BY CORPORATION

COUNTY OF \_\_\_\_\_

I, \_\_\_\_\_, a Notary Public for the aforesaid County and State, certify that \_\_\_\_\_ personally appeared before me this day, and acknowledged that he or she is the Secretary of the Corporation, and that by authority duly given and as the Act of the Corporation, the foregoing three documents (relating to **LOVILLS CREEK & ARARAT RIVER GREENWAY** namely, a Contract with the City of Mount Airy, Performance Bond and Payment Bond were all signed in the Corporation's name by its \_\_\_\_\_ President, whose name is \_\_\_\_\_, sealed with its Corporate Seal, and attested by him/herself as its said Secretary or Assistant Secretary.

This the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

My Commission expires: \_\_\_\_\_

\_\_\_\_\_  
Notary Public

\*\*\*\*\*

STATE OF \_\_\_\_\_, ACKNOWLEDGEMENT BY ATTORNEY  
IN FACT FOR SURETY

COUNTY OF \_\_\_\_\_

I, \_\_\_\_\_ a Notary Public for the aforesaid County and State, certify that \_\_\_\_\_ personally appeared before me this day, and acknowledged that he/she is \_\_\_\_\_ Attorney in Fact for \_\_\_\_\_ (hereinafter "the Surety"), and that by authority duly given and as the act of the Surety, he or she executed the foregoing two documents (relating to **LOVILLS CREEK & ARARAT RIVER GREENWAY**) namely, a Performance Bond and Payment Bond.

This the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

My Commission expires: \_\_\_\_\_

\_\_\_\_\_  
Notary Public

**NOTICE TO CONTRACTOR REGARDING INTRUSIONS BEYOND PROJECT LIMITS**

The Contractor and Owner hereby acknowledge that the Owner has acquired permanent and temporary easements on private property for the construction of the Project, and that such easements, together with public street rights-of-way (and previously acquired easements) comprise the sole areas where the Contractor is allowed to work on the Project, or to use for mobilization, access, staging, storage, and other purposes associated with the Project.

**ANY OCCUPANCY OF OR INTRUSIONS ONTO PRIVATE PROPERTY OUTSIDE SUCH EASEMENTS OR RIGHTS-OF-WAY OWNED OR CONTROLLED BY THE CITY WILL CONSTITUTE A TRESPASS UPON PRIVATE PROPERTY, AND WILL LIKELY INVOLVE SERIOUS LEGAL CONSEQUENCES FOR THE CITY OF MOUNT AIRY.** Accordingly, the Contractor will be solely responsible for such actions and hereby agrees to hold harmless and indemnify the City from all actions, claims, liabilities, including the payment of attorney's fees, arising from such actions.

The only exception to the above stated limitations on the Contractor's work area will be in those instances where the Contractor has independently negotiated and secured agreements for temporary work and/or access privileges from Property Owners. Such agreements must be in writing, and a copy of any such agreement shall be provided to the City in advance of any use or occupancy of private property pursuant to the agreement. The terms of these agreements should clearly express to the Property Owner that the Contractor is seeking such use, occupancy, or access independently from the CITY OF MOUNT AIRY and its Contract with the CITY OF MOUNT AIRY, and that the Contractor will be solely responsible for activities carried out on such areas.

I have read and understand the CITY OF MOUNT AIRY'S policy as stated above.

---

Signature

---

Printed Name

---

Title

---

Date

**OWNER'S CERTIFICATES**

**EXTRACT FROM MINUTES OF CONTRACT AWARD MEETING**

The City Council of MOUNT AIRY, N.C. met in \_\_\_\_\_,  
meeting at \_\_\_\_\_ .m., local time, \_\_\_\_\_, 201\_, with the following  
members present: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Absent: \_\_\_\_\_

Stewart, Inc., submitted to the Owner a tabulation of Proposals received for: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

and reported to the Owner that in their opinion the best Bid received for furnishing all labor,  
materials, equipment, etc., for: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

was that of \_\_\_\_\_

Thereupon, \_\_\_\_\_ moved that the proposal of:

\_\_\_\_\_

be accepted as the best Bid received, from the standpoint of the Owner's interests, and that the  
Manager and City Clerk be authorized to execute, on behalf of the Owner, a formal agreement  
embodying the provisions of said proposal. The motion was seconded by \_\_\_\_\_  
and adopted on the following call vote.

AYES: \_\_\_\_\_

NAYS: \_\_\_\_\_

\_\_\_\_\_

**CERTIFICATE OF CLERK**

I \_\_\_\_\_, do hereby certify the foregoing and above to be an accurate copy of so much of the minutes of a meeting of the City of Mount Airy City Council, \_\_\_\_\_ held on \_\_\_\_\_, 2014, as relate in any way to the awarding of a Contract for the:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

in and/or for the CITY OF MOUNT AIRY, N.C., said minutes being entered in volume \_\_\_\_\_ at page \_\_\_\_.

Witness my hand and seal of the CITY OF MOUNT AIRY, N.C., on this \_\_\_\_\_ day of \_\_\_\_\_, 201\_\_.

\_\_\_\_\_, Clerk

\_\_\_\_\_



## NOTICE OF AWARD

TO: CONTRACTOR:\_\_\_\_\_

ADDRESS:\_\_\_\_\_

\_\_\_\_\_

OWNER: CITY OF MOUNT AIRY, NORTH CAROLINA

PROJECT: **LOVILLS CREEK & ARARAT RIVER GREENWAY**

You are hereby notified that the City has considered the Proposal submitted by you for the above-described project at the Bid Opening on \_\_\_\_\_, 20\_\_\_\_\_. It appears that it is to the best interest of said Owner to accept your Proposal in the amount of (in words)\_\_\_\_\_

\_\_\_\_\_ Dollars (\$\_\_\_\_\_)

\_\_\_\_\_) You are required to deliver to the City three fully-executed counterparts of the Agreement within ten days from the date of the delivery of this Notice to you. If you fail to comply with this requirement, the City will be entitled to consider all your rights arising out of the City's acceptance of your Proposal as abandoned and to award the work covered by your Proposal to another, or to re-advertise the work or otherwise dispose thereof as the City may see fit.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_

City of Mount Airy  
Mount Airy, NC 27030

By:\_\_\_\_\_

Title:\_\_\_\_\_

## ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_

By:\_\_\_\_\_

Title:\_\_\_\_\_

CITY OF MOUNT AIRY, NORTH CAROLINA, CONTRACT

**INSTRUCTIONS TO CONTRACTORS AND  
REQUIREMENTS AS TO FORM FOR CITY OF MOUNT AIRY, NC CONTRACTS**

**DO NOT REMOVE FROM CONTRACT**

Please observe the following in executing the attached Contract:

1. The Owner may Contract with three types of legal entities.
  - (a) If the Contract is with an individual, that individual should sign the Contract exactly as his name is set out. If the Contract is with an individually-owned business, the Contract should be with the individual owner, and not the named business.
  - (b) Execution on behalf of a corporation should be by the president or a vice president, attested by the corporate secretary, with the corporate seal affixed. An official other than president or vice president should attach documentation of his authority to execute and bind the company.
  - (c) If the Contract is with a partnership, all members of the partnership should execute unless an authorized partner is designated to execute. Documentation of such authorization should be attached.
2. After signing the Contract, the appropriate notary's acknowledgment, either in the corporate form or individual/partnership form should be completed.
3. The Performance and Payment Bonds should be attached to the Contract package. They should be signed by the Contractor, and his signature should be acknowledged with the appropriate acknowledge form. Next, the Bonds, in approved form, must be signed by the authorized agent of the Surety Company issuing the Bonds, and an executed Power of Attorney document authorizing the agent to sign must accompany the Bond Documents.
4. The Contract should not be dated, except by the last person executing the Contract, normally the City Clerk.
5. The Bid Form and all other documents submitted with the Bid shall be included with the Contract.
6. Complete the Acceptance of Notice section on this page.
7. DO NOT DATE. Owner will date upon executing the Agreement.
8. Complete Further Agreements in this section in its entirety.
9. Affidavit in this section in its entirety.
10. Attach Certificate of Insurance,

11. Most Certificates of Insurance state under the cancellation clause that "the issuing company will endeavor to mail 60 days written notice to the ..." and "but failure to mail such notice shall impose no obligation or liability of any kind upon the Company, its agents or representatives". If your certificate states this, the words "endeavor to" and "but failure to mail such notice shall impose no obligation or liability of any kind upon the Company, its agents or representatives" must be stricken in order to comply with the Contract Documents.
12. Five copies of the Contract are sent to the Contractor. The original and duplicates should be signed and returned to the Owner for signature, after which two duplicates will be returned to the Contractor. One copy may be retained by the Contractor, and the other is for the use of the Bonding Company(s).
13. Failure to fully complete all five sets of the Contract Documents will cause delays in the approval by the Owner and therefore delay the issuance of the Notice to Proceed.

NORTH CAROLINA  
CITY OF MOUNT AIRY

## CONTRACT FOR CONSTRUCTION

THIS CONTRACT is entered into by and between \_\_\_\_\_, hereinafter referred to as the “Contractor”, and THE CITY OF MOUNT AIRY, a North Carolina municipal corporation, hereinafter referred to as the “City” for the project entitled: LOVILLS CREEK & ARARAT RIVER GREENWAY

And for the Contract Amount of: \_\_\_\_\_ (in written word and numerals).

### WITNESSETH:

WHEREAS, the City desires to procure a contractor to perform services; and

WHEREAS, the City has completed necessary steps for retention of construction/repair services under State law and applicable City policies; and

WHEREAS, the City has agreed to engage the Contractor, and the Contractor has agreed to contract with the City, for performance of services as described, and according to the further terms and conditions, set forth herein.

NOW THEREFORE, in consideration of sums to be paid to the Contractor, and other good and valuable consideration, the Contractor and City do contract and agree as follows:

#### 1. Description of Work

The Contractor, at his (its) own proper cost and expense and with skill and diligence, shall furnish all labor, tools, materials and equipment and do all things necessary for the proper construction and completion ready for use of the following improvements:

Construct 2.19 total miles of trail construction, consisting of 1.74 miles of new 10 foot wide asphalt trail construction, 0.37 miles of new 10 foot wide concrete trail construction, 300 linear feet of new 10 foot wide wooden boardwalk construction, 130 linear feet of new bridge construction, associated clearing, drainage, erosion control, and signage.

In strict accordance with and as shown in the specifications, schedules, drawings and other documents set forth herein or incorporated by reference as follows:

NCDOT Standard Specifications for Roads and Structures  
NCDOT Roadway Standard Drawings

In case of conflict between this Contract and any incorporated attachments or references, the terms of this Contract shall prevail.

The Contractor shall further perform in accordance with the directions (not inconsistent therewith) given from time to time during the construction by the Project Engineer or such other official, employee, or other agent of the City as the City may designate.

## 2. General Obligations of the Contractor

The Contractor will accept the prices specified in this Contract in full compensation and satisfaction for the performance of this Contract and as consideration of this Contract. The Contractor shall be responsible for all loss and damages of every kind and nature which may arise out of or an account of the performance of the work required by this Contractor, and for all risks of every description connected with the said work; and the Contractor shall be responsible for well and faithfully completing the whole work according to all applicable plans and specifications and the terms and conditions of this Contract.

## 3. Time of Commencement and Completion

The entire work required by this Contract shall be completed by the Contractor not later than 270 days after the date of Notice-to-Proceed.

## 4. Workmanship and Quality of Services/Warranties

All work under this Contract shall be done and performed to the satisfaction of the Project Engineer of the CITY OF MOUNT AIRY, or of such other official, employee, or agent of the CITY OF MOUNT AIRY as may be designated by the City, and such official, employee or agent designated by the City shall in all cases of dispute determine the quantity, quality, acceptability and fitness of the work and materials and of several portions thereof which are to be paid for under this Contract and shall decide and determine all questions which may arise as to the measurements, lines, levels and dimensions of the work and all questions respecting the true construction, interpretation or meaning of the plans and specifications. In case of dispute between the Contractor and the said official, employee, or agent of the City, the decision and determination of the latter shall be taken, and shall be final and conclusive.

The Contractor, in executing this Contract, warrants that he will be responsible for the maintenance or correction of any work completed under this Contract that may become defective due to faulty workmanship or materials for a period of one (1) year after final acceptance of the work performed.

It is understood and agreed by the parties hereto that work done under this Contract shall be subject to all ordinances of the CITY OF MOUNT AIRY relating to work done in the public streets or other public property of the City.

## 5. Compensation

In consideration of the performance of this Contract and the full completion of the work required of the Contractor by the terms and conditions of this Contract, the City agrees to pay to the Contractor the contract amount based on the following: Partial payments will be made to the Contractor by the City NET thirty (30) days after presentation of a true and accurate payment application to the City as certified by the Project Engineer or agent of the CITY OF MOUNT AIRY. Final estimate of the amount due to the Contractor will be made within thirty (30) days after the certified completion and final acceptance of all the work required by the Contract.

Payment to the Contractor by the City of the amounts so determined to be due, in accordance with this Contract, shall relieve the City from all claims for work done and materials and equipment furnished under this Contract.

It is further mutually agreed between the parties that no estimate or partial payment made under this Contract shall be conclusive evidence of the performance of this Contract, either wholly or in part, and that no such payment shall be construed to be an acceptance of defective work or improper materials.

From the Date of Availability the Contractor shall in accordance with the Specifications incorporated into this Contract, shall substantially complete the all work of the Contract within Two Hundred and Ten (210) Calendar Days. Failure to substantially complete the work in accordance with the Contract Documents shall result in Liquidated Damages of Six Hundred Dollars for each Calendar day beyond the Completion Date.

#### 6. Notices

All notices, requests for payment, or other communications arising hereunder shall be sent to the following:

CITY OF MOUNT AIRY  
Attn: Mitch Williams, P.E.  
Telephone: 336-786-3580  
440 E. Pine Street  
Mount Airy, NC 27030

Contractor

#### 7. Non-discrimination

In consideration of the signing of this Contract, the parties hereto for themselves, their agents, officials, employees and servants agree not to discriminate in any manner on the basis of race, color, creed, national origin, sex, age, handicap, or sexual orientation with reference to the subject matter of this Contract, no matter how remote. This provision is hereby incorporated into this Contract for the benefit of THE CITY OF MOUNT AIRY and its residents, and may be enforced by action for specific performance, injunctive relief, or other remedy as provided by law. This provision shall be binding on the successors and assigns of the parties with reference to the subject matter of this Contract.

#### 8. Assignment

This Contract may not be assigned without the express written consent of the City.

#### 9. Applicable Law

All matters relating to this Contract shall be governed by the laws of the State of North Carolina, without regard to its choice of law provisions, and venue for any action relating to this Contract shall be the Surry County Civil Superior Court or the United States District Court for the Middle District of North Carolina.

## 10. Insurance

Contractor agrees to purchase at its own expense insurance coverages to satisfy the following minimum requirements. A certificate reflecting the following minimum coverages shall accompany this Contract:

### **Workers' Compensation Insurance:**

Limits:

Workers Compensation: Statutory for the State of North Carolina  
Employers Liability: Bodily Injury by Accident \$5,000,000 each accident  
Bodily Injury by Disease \$5,000,000 policy limit  
Bodily Injury by Disease \$5,000,000 each employee

### **Commercial General Liability:**

Limits:

Each Occurrence:	\$5,000,000
Personal and Advertising Injury	\$5,000,000
General Aggregate Limit	\$5,000,000
Products and Completed Operations Aggregate	\$5,000,000

The aggregate limit must apply per project. The form of coverage must be the ISO CG 00 01 policy as approved by the State of North Carolina Department of Insurance. If a form of coverage other than the CG 00 01 is used it must be approved by the CITY OF MOUNT AIRY. Any endorsed exclusions or limitations from the standard policy must be clearly stated in writing and attached to the Certificate of Insurance. Completed Operations coverage must be maintained for the period of the applicable statute of limitations.

The CITY OF MOUNT AIRY and the STATE OF NORTH CAROLINA must be added as an Additional Insured to the Commercial General Liability policy.

### **Railroad Protective Liability:**

Limits:

Each Occurrence:	\$1,000,000
General Aggregate Limit	\$3,000,000

The aggregate limit must apply per project to each annual period. The policy must be written using one of the following combinations of Insurance Services Office ("ISO") Railroad Protective Liability Insurance Form Numbers:

- (1) CG 00 35 01 96 and CG 28 31 10 93; or
- (2) CG 00 35 07 98 and CG 28 31 07 98; or
- (3) CG 00 35 10 01; or
- (4) CG 00 35 12 04

The named insured on each policy as required to be issued to each Company and to Railroad shall read "Yadkin Valley Railroad".

**Commercial Automobile Liability:****Limits:**

\$1,000,000 combined single limit.

The CITY OF MOUNT AIRY and the STATE OF NORTH CAROLINA must be added as an Additional Insured on the Commercial Auto Liability policy.

**Named Insured:**

The named Insured shall be the **CITY OF MOUNT AIRY**, the **STATE OF NORTH CAROLINA**, the Contractor and all sub-contractors with a contractual assumption of responsibility for damage to the project.

All insurance companies must be admitted to do business in North Carolina and be acceptable to the CITY OF MOUNT AIRY. If the insurance company(s) is a permitted surplus lines insurer, the insurance company name, and NAIC number must be submitted to the City for approval before commencing work. Contractor shall be required to provide the City no less than thirty (30) days notice of cancellation, or any material change, to any insurance coverage required by this Contract.

A Certificate of Insurance (COI) must be issued by an authorized representative of the insurance carrier(s). Certificates of Insurance must have the Insurance Company name and NAIC number clearly identified. The acceptance of or the review of Certificates of Insurance by the CITY OF MOUNT AIRY does not relieve Contractor of any requirements in the contract to provide specific insurance coverage required by the contract, nor does the acceptance of or review of Certificates of Insurance covenant all insurance requirements have been met.

**11. Surety Bonds**

If Surety Bonds are required by the City for this project, the Contractor shall have furnished and attached hereto a Performance Bond and a Payment Bond each in the penal sum of the full Contract amount covering the faithful performance of the Contract and the payment of all obligations arising hereunder, in such form and content as the City may prescribe and with surety approved by the City. Should any surety upon the bond for the performance of this Contract become unacceptable to the City, the Contractor must promptly furnish additional security as may be required from time to time by the City to protect the interests of the City and of persons, firms and corporations supplying labor or materials in the performance of the work contemplated by the Contract.

**12. Indemnity**

Except to the extent caused by the sole negligence or willful misconduct of the City, the Contractor shall indemnify and hold and save the City, its officers, agents and employees, harmless from liability of any kind, including all claims, costs (including defense) and losses accruing or resulting to any other person, firm, or corporation furnishing or supplying work, services, materials, or supplies in connection with the performance of this Contract, and from



any and all claims, costs (including defense) and losses accruing or resulting to any person, firm, or corporation that may be injured or damaged by the Contractor's negligence in the performance of this Contract. This representation and warranty shall survive the termination or expiration of this Contract.

The Contractor shall indemnify and hold and save the City, its officers, agents and employees, harmless from liability of any kind, including claims, costs (including defense) and expenses, on account of any copyrighted material, patented or unpatented invention, articles, device or appliance manufactured or used in the performance of this Contract.

### 13. Force Majeure

Except as otherwise provided in any environmental laws, rules, regulations or ordinances applicable to the parties and the services performed under this Contract, neither party shall be deemed to be in default of its obligations hereunder if and so long as it is prevented from performing such obligations by an act of war, hostile foreign actions, nuclear explosion, earthquake, hurricane, tornado, or other catastrophic natural event or act of God. Either party to the Contract must take reasonable measures and implement reasonable protections when a weather event otherwise defined as a force majeure event is forecast to be eligible to be excused from the performance otherwise required under this Contract by this provision.

### 14. Advertising

The Contractor shall not use the existence of this Contract, or the name of the CITY OF MOUNT AIRY, as part of any advertising without prior written approval of the City.

### 15. Termination

If the Contractor fails to perform the work described herein by the time allowances provided in Section 3, or fails to provide adequate staff and resources required to properly execute said work in a workmanlike and safe manner, the CITY OF MOUNT AIRY can declare the Contractor in Default. If the Contractor fails to complete the work in the provided project duration as stated in item 3 of this document, or fails to meet periodic schedules describing work sequence, or fails to comply with all appropriate local, federal, or state laws, rules and regulations the City may, without prejudice to any other right or remedy and after giving the Contractor and his surety a maximum of seven (7) days from delivery of a written notice, declare the Contract in default, take possession of the project and of all equipment, tools, materials thereon owned by the Contractor and call upon the surety or appropriate legal recourse to finish the work by whatever method deemed expedient.

### 16. Laws/Safety Standards

The Contractor shall comply with all laws, ordinances, codes, rules, regulations, safety standards and licensing requirements that are applicable to the conduct of its business, including those of Federal, State, and local agencies having jurisdiction and/or authority.

All manufactured items and/or fabricated assemblies subject to operation under pressure, operation by connection to an electric source, or operation involving a connection to a manufactured, natural, or LP gas source shall be constructed and approved in a manner acceptable to the appropriate state inspector which customarily requires the label or re-examination listing or identification marking

of the appropriate safety standard organization, such as the American Society of Mechanical Electrical Engineers for pressure vessels; the Underwriters' Laboratories and/or National Electrical Manufacturers' Association for electrically operated assemblies; or the American Gas Association for gas operated assemblies, where such approvals of listings have been established for the type(s) of devices offered and furnished. Further, all items furnished by the Contractor shall meet all requirements of the Occupational Safety and Health Act (OSHA), and state and federal requirements relating to clean air and water pollution.

Contractor must comply with *North Carolina Occupational Safety and Health Standards for General Industry, 29CFR 1910*. In addition, Contractor shall comply with all applicable occupational health and safety and environmental rules and regulations.

Contractor shall effectively manage their safety and health responsibilities including:

A. Accident Prevention

Prevent injuries and illnesses to their employees and others on or near their job site. Contractor managers and supervisors shall ensure personnel safety by strict adherence to established safety rules and procedures.

B. Environmental Protection

Protect the environment on, near, and around their work site by compliance with all applicable environmental regulations.

C. Employee Education and Training

Provide education and training to all contractors employees before they are exposed to potential workplace or other hazards as required by specific OSHA Standards.

17. Applicability of North Carolina Public Records Law

Notwithstanding any other provisions of this Contract, this Contract and all materials submitted to the City by the Contractor are subject to the public records laws of the State of North Carolina and it is the responsibility of the Contractor to properly designate materials that may be protected from disclosure as trade secrets under North Carolina law as such and in the form required by law prior to the submission of such materials to the City. Contractor understands and agrees that the City may take any and all actions necessary to comply with federal, state, and local laws and/or judicial orders and such actions will not constitute a breach of the terms of this Contract. To the extent that any other provisions of this Contract conflict with this paragraph, the provisions of this section shall control.

18. Miscellaneous

The Contractor shall be responsible for the proper custody and care of any property furnished or purchased by the City for use in connection with the performance of this Contract, and will reimburse the City for the replacement value of its loss or damage. The Contractor shall keep the job sites and surrounding area reasonably free from rubbish at all times and shall remove debris from the site from time to time or when directed to do so by the City. Before final inspection and acceptance of the project, the Contractor shall thoroughly clean the job sites, and completely prepare the project and site for use by the City.

The Contractor shall be considered to be an Independent Contractor and as such shall be wholly responsible for the work to be performed and for the supervision of its employees. Nothing herein is intended or will be construed to establish any agency, partnership, or joint venture. Contractor represents that it has, or will secure at its own expense, all personnel required in performing the services under this Contract. Such employees shall not be employees of or have any individual contractual relationship with the City.

This Contract may be amended only by written agreement of the parties executed by their authorized representatives.

## 19. Audit

Contractor's, subcontractors' and sub-subcontractors' "records" shall upon reasonable notice be open to inspection and subject to audit and/or reproduction during normal business working hours. Such audits may be performed by a City's representative or an outside representative engaged by City. The City or its designee may conduct such audits or inspections throughout the term of this Contract and for a period of three years after final payment or longer if required by law. City's representatives may (without limitation) conduct verifications such as counting employees at the Construction Site, witnessing the distribution of payroll, verifying information and amounts through interviews and written confirmations with Contractor employees, field and agency labor, subcontractors, and vendors.

Contractor's "records" as referred to in this Contract shall include any and all information, materials and data of every kind and character, including without limitation, records, books, papers, documents, subscriptions, recordings, agreements, purchase orders, leases, contracts, commitments, arrangements, notes, daily diaries, superintendent reports, drawings, receipts, vouchers and memoranda, and any and all other agreements, sources of information and matters that may in City's judgment have any bearing on or pertain to any matters, rights, duties or obligations under or covered by any Contract Document. Such records shall include (hard copy, as well as computer readable data if it can be made available), written policies and procedures; time sheets; payroll registers; payroll records; cancelled payroll checks; subcontract files (including proposals of successful and unsuccessful bidders, bid recaps, negotiation notes, etc.); original bid estimates; estimating work sheets; correspondence; change order files (including documentation covering negotiated settlements); backcharge logs and supporting documentation; invoices and related payment documentation; general ledger, information detailing cash and trade discounts earned, insurance rebates and dividends; and any other contractor records which may have a bearing on matters of interest to the City in connection with the Contractor's dealings with the City (all foregoing hereinafter referred to as "records") to the extent necessary to adequately permit evaluation and verification of any or all of the following:

- (a) Compliance with Contract requirements for deliverables
- (b) Compliance with approved plans and specifications
- (c) Compliance with City's business ethics expectations
- (d) Compliance with Contract provisions regarding the pricing of change orders
- (e) Accuracy of Contractor representations regarding the pricing of invoices

- (f) Accuracy of Contractor representations related to claims submitted by the Contractor or any of his payees.

Contractor shall require all payees (examples of payees include subcontractors, material suppliers, insurance carriers, etc.) to comply with the provisions of this article by including the requirements hereof in a written contract agreement between Contractor and payee. Contractor will ensure that all payees (including those entering into lump sum contracts) have the same right to audit provisions contained in this Contract.

City's authorized representative or designee shall have reasonable access to the Contractor's facilities, shall be allowed to interview all current or former employees to discuss matters pertinent to the performance of this Contract and shall be provided adequate and appropriate work space, in order to conduct audits in compliance with this article.

If an audit inspection or examination in accordance with this article, discloses overpricing or overcharges (of any nature) by the Contractor to the City in excess of one percent (1%) of the total contract billings, in addition to making adjustments for the overcharges, the reasonable actual cost of the City's audit shall be reimbursed to the City by the Contractor. Any adjustments and/or payments which must be made as a result of any such audit or inspection of the Contractor's invoices and/or records shall be made within a reasonable amount of time (not to exceed 90 days) from presentation of City's findings to Contractor.

## 20. Incorporation of Documents/Complete Agreement

This Contract, and any documents incorporated below, represent the entire Contract between the parties and suspend all prior oral or written statements, agreements or Contracts.

Specifically incorporated into this Contract are the following attachments, or if not physically attached, are incorporated fully herein by reference:

- ☐ Advertisement for Proposals
- ☐ Contractor's Proposal
- ☐ Procedure for N.C. Sales Tax Reporting
- ☐ Performance Bond (w/Power-of-Attorney)
- ☐ Payment Bond (w/Power-of-Attorney)
- ☐ Certificate of Insurance
- ☐ NCDOT Standard Specifications For Roads and Structures (January 2012)
- ☐ Special or Supplemental Conditions
- ☐ Job Specifications
- ☐ SDMWOB Affidavits/documentation
- ☐ Other (Describe) \_\_\_\_\_

In cases of conflict between this Contract and any of the above incorporated attachments or references, the terms of this Contract shall prevail.

The remainder of this page is left blank intentionally.

THIS CONTRACT is entered into this            day of            , 20            .  
IN WITNESS WHEREOF, the Contractor has executed the foregoing with the  
signature(s) of its duly authorized officer(s), under seal, and the City has executed with  
the signature of its CITY MANAGER, attested by its (Assistant/Deputy) Clerk-Treasurer,  
with the official seal affixed, the day and year first above written.

**CONTRACTOR:**

**THE CITY OF MOUNT AIRY**

By:

By:

\_\_\_\_\_

\_\_\_\_\_

CITY MANAGER

\_\_\_\_\_  
Printed Name/Title

(If corporate)

ATTEST:

ATTEST:

By:\_\_\_\_\_

By:\_\_\_\_\_

(Deputy) Clerk-Treasurer

\_\_\_\_\_  
Printed Name/Title  
(Affix Seal)

(Affix Seal)

THIS INSTRUMENT APPROVED AS TO  
FORM:

\_\_\_\_\_  
City Attorney

NORTH CAROLINA  
THE CITY OF MOUNT AIRY

This is to certify that on the \_\_\_\_\_ day of \_\_\_\_\_, 201\_, before me personally came Barbara A. Jones, with whom I am personally acquainted, who being by me duly sworn, says that she is the CITY MANAGER and Nicki Brame is the City Clerk of the CITY OF MOUNT AIRY, the municipal corporation described in and which executed the foregoing; that she knows the corporate seal of said municipal corporation; that the name of the municipal corporation was subscribed thereto by the said City Clerk and that the said corporate seal was affixed, all by order of the governing body of said municipal corporation, and that said instrument is the act and deed of said municipal corporation.

WITNESS my hand and official stamp or seal this \_\_\_\_\_ day of \_\_\_\_\_, 201\_.

(SEAL)

\_\_\_\_\_  
Notary Public

My Commission Expires: \_\_\_\_\_

(CORPORATE ACKNOWLEDGEMENT)

STATE OF NORTH CAROLINA  
CITY OF \_\_\_\_\_

This is to certify that on \_\_\_\_\_ day of \_\_\_\_\_, 201\_, before me personally came \_\_\_\_\_, with whom I am personally acquainted, who, being duly sworn, says that he is the President and \_\_\_\_\_ is the Secretary of \_\_\_\_\_ the corporation described in and which executed the foregoing instrument; that(s)he knows the common seal of said corporation; that the seal affixed to the foregoing instrument is said common seal, and the name of the corporation was subscribed thereto by the said Secretary and the said corporate seal was affixed, all by order of the Board of Directors of said corporation, and that the said instrument is the act and deed of said corporation.

Witness my hand and official seal this \_\_\_\_\_ day of \_\_\_\_\_, 201\_.

\_\_\_\_\_  
(SEAL)

\_\_\_\_\_  
Notary Public

My Commission Expires: \_\_\_\_\_

STATE OF NORTH CAROLINA  
City of \_\_\_\_\_

Personally appeared before me the undersigned Notary Public, \_\_\_\_\_ who, being first duly sworn, acknowledged the due execution of the foregoing instrument for the purpose therein stated.

Witness my hand and notarial seal this the \_\_\_\_\_ day of \_\_\_\_\_, 201\_.

\_\_\_\_\_  
(SEAL)

\_\_\_\_\_  
Notary Public

My commission expires: \_\_\_\_\_

(LLC ACKNOWLEDGEMENT)

NORTH CAROLINA  
THE CITY OF MOUNT AIRY

I, \_\_\_\_\_, a Notary Public for said City and State, do hereby  
certify that \_\_\_\_\_, Manager of \_\_\_\_\_, a limited  
liability company, personally appeared before me this day and acknowledged the due execution  
of the foregoing instrument on behalf of the company.

Witness my hand and official stamp or seal, this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

(SEAL)

\_\_\_\_\_  
Notary Public

My commission expires: \_\_\_\_\_

**AFFIDAVIT**

(To be attached to all Contracts)

STATE OF \_\_\_\_\_

CITY OF \_\_\_\_\_

\_\_\_\_\_ being first duly sworn on oath deposes and says that (s)he is  
(attorney-in-fact or agent) of \_\_\_\_\_  
(bonding company) surety on the attached Contract on \_\_\_\_\_  
executed by \_\_\_\_\_ (Contractor).

Affiant further deposes and says that no officer, official, or employee of the Owner has any interest directly or indirectly, or is receiving any premium, commission fee, or other thing of value on account of the same or furnishing of the Bond, undertaking or contract of indemnity, guaranty, suretyship in connection with the above mentioned contract.

Signed

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_,  
A.D., 20\_\_\_\_.

(Notary Public, \_\_\_\_\_ City, \_\_\_\_\_)

My Commission Expires \_\_\_\_\_.



**POWER OF ATTORNEY**

(Attach)

## **CERTIFICATE OF INSURANCE**

(Attach)

There shall appear on each copy of Workmen's Compensation, Public Liability, and Builder's Risk Insurance Certificates the following clause:

"It is agreed that the coverage as stated shall not be canceled or changed until ten days after written notice of such termination or alteration has been sent by Registered Mail to the City."

**CERTIFICATE OF OWNER'S ATTORNEY**

I hereby certify that I am the duly appointed attorney for the Owner of this project and that I have examined the foregoing instrument and Bond and approve the same as being legal and in proper form.

This \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

---

Attorney-at-Law

**OWNER'S CERTIFICATE OF PAYMENTS**

I hereby certify that I am the legal and duly appointed Financial Officer for the Owner of this project and that provision for the payment of the moneys to fall due under this agreement has been made by appropriation duly made, or by Bonds or notes duly authorized, as required by the Local Government Act.

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_

DATE: \_\_\_\_\_

**NOTICE TO PROCEED**

TO: CONTRACTOR:\_\_\_\_\_

ADDRESS:\_\_\_\_\_

\_\_\_\_\_

OWNER: City of Mount Airy  
Mount Airy, North Carolina

PROJECT: **LOVILLS CREEK & ARARAT RIVER GREENWAY**

Contract Amount: \$\_\_\_\_\_

You are hereby notified to commence work on the referenced project on\_\_\_\_\_,  
\_\_\_\_\_, 20 \_\_\_\_\_ and are to fully complete the work within **270**  
**CONSECUTIVE CALENDAR DAYS** thereafter. Your contract completion date is  
therefore\_\_\_\_\_, 20 \_\_\_\_\_.

The Contract provides for assessment of liquidated damages for each consecutive  
calendar day after the above established Contract completion date that the work  
remains incomplete as listed in the Proposal.

City of Mount Airy  
Mount Airy, North Carolina

BY:\_\_\_\_\_

Mitch Williams, P.E.  
City Engineer

Date:\_\_\_\_\_

**Execution of Contract**

**Contract No: NCDOT TIP: EB-5014, CITY OF MOUNT AIRY**

**County: SURRY**

ACCEPTED BY **CITY OF MOUNT AIRY**

---

**CITY MANAGER**

---

Date

EXECUTION OF CONTRACT AND BONDS  
APPROVED AS TO FORM:

---

**(title of legal representative)**

---

Date

Signature Sheet (Bid) - ACCEPTANCE SHEET

## **PROJECT SPECIAL PROVISIONS**

### **GENERAL**

**CONTRACT TIME AND LIQUIDATED DAMAGES:**

(7-1-95) (Rev. 12-18-07)

108

SP1 G10 A

The date of availability for this contract is **[date]**\_\_\_\_\_.

The completion date for this contract is **[date]**\_\_\_\_\_.

Except where otherwise provided by the contract, observation periods required by the contract will not be a part of the work to be completed by the completion date and/or intermediate contract times stated in the contract. The acceptable completion of the observation periods that extend beyond the final completion date shall be a part of the work covered by the performance and payment bonds.

The liquidated damages for this contract are **Six Hundred Dollars (\$600)** per calendar day.



**PROSECUTION OF WORK:**

(7-1-95) (Rev. 8-21-12)

108

SP1 G15R

The Contractor will be required to prosecute the work in a continuous and uninterrupted manner from the time he begins the work until completion and final acceptance of the project. The Contractor will not be permitted to suspend his operations except for reasons beyond his control or except where the Engineer has authorized a suspension of the Contractor's operations in writing.

In the event that the Contractor's operations are suspended in violation of the above provisions, the sum of \$ **600.00** will be charged the Contractor for each and every calendar day that such suspension takes place. The said amount is hereby agreed upon as liquidated damages due to extra engineering and maintenance costs and due to increased public hazard resulting from a suspension of the work. Liquidated damages chargeable due to suspension of the work will be additional to any liquidated damages that may become chargeable due to failure to complete the work on time.

**NO MAJOR CONTRACT ITEMS:**

(2-19-02) (Rev. 8-21-07)

104

SP1 G31

None of the items included in this contract will be major items.

**NO SPECIALTY ITEMS:**

(7-1-95)

108-6

SP1 G34

None of the items included in this contract will be specialty items (see Article 108-6 of the *2012 Standard Specifications*).

## **DISADVANTAGED BUSINESS ENTERPRISE (LOCAL GOVERNMENT AGENCIES):**

(10-16-07)(Rev.12-17-13)

102-15(J)

SP1 G63

### **Description**

The purpose of this Special Provision is to carry out the U.S. Department of Transportation's policy of ensuring nondiscrimination in the award and administration of contracts financed in whole or in part with Federal funds. This provision is guided by 49 CFR Part 26.

### **Definitions**

*Additional DBE Subcontractors* - Any DBE submitted at the time of bid that will not be used to meet the DBE goal. No submittal of a Letter of Intent is required.

*Committed DBE Subcontractor* - Any DBE submitted at the time of bid that is being used to meet the DBE goal by submission of a Letter of Intent. Or any DBE used as a replacement for a previously committed DBE firm.

*Contract Goal Requirement* - The approved DBE participation at time of award, but not greater than the advertised contract goal.

*DBE Goal* - A portion of the total contract, expressed as a percentage, that is to be performed by committed DBE subcontractor(s).

*Disadvantaged Business Enterprise (DBE)* - A firm certified as a Disadvantaged Business Enterprise through the North Carolina Unified Certification Program.

*Goal Confirmation Letter* - Written documentation from the City of Mount Airy to the bidder confirming the Contractor's approved, committed DBE participation along with a listing of the committed DBE firms.

*Local Government Agencies (LGA)* - The entity letting the contract.

*Manufacturer* - A firm that operates or maintains a factory or establishment that produces on the premises, the materials or supplies obtained by the Contractor.

*Regular Dealer* - A firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials or supplies required for the performance of the contract are bought, kept in stock, and regularly sold to the public in the usual course of business. A regular dealer engages in, as its principal business and in its own name, the purchase and sale or lease of the products in question. A regular dealer in such bulk items as steel, cement, gravel, stone, and petroleum products need not keep such products in stock, if it owns and operates distribution equipment for the products. Brokers and packagers are not regarded as manufacturers or regular dealers within the meaning of this section.

*North Carolina Unified Certification Program (NCUCP)* - A program that provides comprehensive services and information to applicants for DBE certification, such that

an applicant is required to apply only once for a DBE certification that will be honored by all recipients of USDOT funds in the state and not limited to the Department of Transportation only. The Certification Program is in accordance with 49 CFR Part 26.

*Standard Specifications* - The general term comprising all directions, provisions, and requirements contained or referred to in the *North Carolina Department of Transportation Standard Specifications for Roads and Structures* and any subsequent revisions or additions to such book.

*United States Department of Transportation (USDOT)* - Federal agency responsible for issuing regulations (49 CFR Part 26) and official guidance for the DBE program.

### **Forms and Websites Referenced in this Provision**

*DBE Payment Tracking System* - On-line system in which the Contractor enters the payments made to DBE subcontractors who have performed work on the project.  
<https://apps.dot.state.nc.us/Vendor/PaymentTracking/>

*DBE-IS Subcontractor Payment Information* - Form for reporting the payments made to all DBE firms working on the project. This form is for paper bid projects only.  
<http://www.ncdot.org/doh/forms/files/DBE-IS.xls>

*RF-1 DBE Replacement Request Form* - Form for replacing a committed DBE.  
<http://connect.ncdot.gov/projects/construction/Construction%20Forms/DBE%20MBE%20WBE%20Replacement%20Request%20Form.pdf>

*SAF Subcontract Approval Form* - Form required for approval to sublet the contract.  
<http://connect.ncdot.gov/projects/construction/Construction%20Forms/Subcontract%20Approval%20Form%20Rev.%202012.zip>

*JC-1 Joint Check Notification Form* - Form and procedures for joint check notification. The form acts as a written joint check agreement among the parties providing full and prompt disclosure of the expected use of joint checks.  
<http://connect.ncdot.gov/projects/construction/Construction%20Forms/Joint%20Check%20Notification%20Form.pdf>

*Letter of Intent* - Form signed by the Contractor and the DBE subcontractor, manufacturer or regular dealer that affirms that a portion of said contract is going to be performed by the signed DBE for the amount listed at the time of bid.  
<http://connect.ncdot.gov/letting/LetCentral/Letter%20of%20Intent%20to%20Perform%20as%20a%20Subcontractor.pdf>

*Listing of DBE Subcontractors Form* - Form for entering DBE subcontractors on a project that will meet this DBE goal. This form is for paper bids only.  
[http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/08%20DBE%20Subcontractors%20\(Federal\).doc](http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/08%20DBE%20Subcontractors%20(Federal).doc)

*Subcontractor Quote Comparison Sheet* - Spreadsheet for showing all subcontractor quotes in the work areas where DBEs quoted on the project. This sheet is submitted with good faith effort packages.

<http://connect.ncdot.gov/business/SmallBusiness/Documents/DBE%20Subcontractor%20Quote%20Comparison%20Example.xls>

## **DBE Goal**

The following DBE goal for participation by Disadvantaged Business Enterprises is established for this contract:

Disadvantaged Business Enterprises: 8%

- (A) *If the DBE goal is more than zero*, the Contractor shall exercise all necessary and reasonable steps to ensure that DBEs participate in at least the percent of the contract as set forth above as the DBE goal.
- (B) *If the DBE goal is zero*, the Contractor shall make an effort to recruit and use DBEs during the performance of the contract. Any DBE participation obtained shall be reported to the City of Mount Airy.

## **Directory of Transportation Firms (Directory)**

Real-time information is available about firms doing business with the NCDOT and firms that are certified through NCUCP in the Directory of Transportation Firms. Only firms identified in the Directory as DBE certified shall be used to meet the DBE goal. The Directory can be found at the following link. <https://partner.ncdot.gov/VendorDirectory/default.html>

The listing of an individual firm in the directory shall not be construed as an endorsement of the firm's capability to perform certain work.

## **Listing of DBE Subcontractors**

At the time of bid, bidders shall submit all DBE participation that they anticipate to use during the life of the contract. Only those identified to meet the DBE goal will be considered committed, even though the listing shall include both committed DBE subcontractors and additional DBE subcontractors. Additional DBE subcontractor participation submitted at the time of bid will be used toward the overall race-neutral goal. Only those firms with current DBE certification at the time of bid opening will be acceptable for listing in the bidder's submittal of DBE participation. The Contractor shall indicate the following required information:

(A) *If the DBE goal is more than zero,*

- (1) Bidders, at the time the bid proposal is submitted, shall submit a listing of DBE participation, including the names and addresses on *Listing of DBE Subcontractors* contained elsewhere in the contract documents in order for the bid to be considered responsive. Bidders shall indicate the total dollar value of the DBE participation for the contract.
- (2) If bidders have no DBE participation, they shall indicate this on the *Listing of DBE Subcontractors* by entering the word “None” or the number “0.” This form shall be completed in its entirety. **Blank forms will not be deemed to represent zero participation.** Bids submitted that do not have DBE participation indicated on the appropriate form will not be read publicly during the opening of bids. The City of Mount Airy will not consider these bids for award and the proposal will be rejected.
- (3) The bidder shall be responsible for ensuring that the DBE is certified at the time of bid by checking the Directory of Transportation Firms. If the firm is not certified at the time of the bid-letting, that DBE’s participation will not count towards achieving the DBE goal.

(B) *If the DBE goal is zero,* entries on the *Listing of DBE Subcontractors* are not required, however any DBE participation that is achieved during the project shall be reported in accordance with requirements contained elsewhere in the special provision.

### **DBE Prime Contractor**

When a certified DBE firm bids on a contract that contains a DBE goal, the DBE firm is responsible for meeting the goal or making good faith efforts to meet the goal, just like any other bidder. In most cases, a DBE bidder on a contract will meet the DBE goal by virtue of the work it performs on the contract with its own forces. However, all the work that is performed by the DBE bidder and any other DBE subcontractors will count toward the DBE goal. The DBE bidder shall list itself along with any DBE subcontractors, if any, in order to receive credit toward the DBE goal.

For example, if the DBE goal is 45% and the DBE bidder will only perform 40% of the contract work, the prime will list itself at 40%, and the additional 5% shall be obtained through additional DBE participation with DBE subcontractors or documented through a good faith effort.

DBE prime contractors shall also follow Sections A or B listed under *Listing of DBE Subcontractor* just as a non-DBE bidder would.

## **Written Documentation – Letter of Intent**

The bidder shall submit written documentation for each DBE that will be used to meet the DBE goal of the contract, indicating the bidder's commitment to use the DBE in the contract. This documentation shall be submitted on the NCDOT's form titled *Letter of Intent*.

The documentation shall be received in the office of the City Engineer no later than 12:00 noon of the sixth calendar day following opening of bids, unless the sixth day falls on Saturday, Sunday or an official state holiday. In that situation, it is due in the office of the City Engineer no later than 12:00 noon on the next official state business day.

If the bidder fails to submit the Letter of Intent from each committed DBE to be used toward the DBE goal, or if the form is incomplete (i.e. both signatures are not present), the DBE participation will not count toward meeting the DBE goal. If the lack of this participation drops the commitment below the DBE goal, the Contractor shall submit evidence of good faith efforts, completed in its entirety, to the City Engineer no later than 12:00 noon on the eighth calendar day following opening of bids, unless the eighth day falls on Saturday, Sunday or an official state holiday. In that situation, it is due in the office of the City Engineer no later than 12:00 noon on the next official state business day.

## **Submission of Good Faith Effort**

If the bidder fails to meet or exceed the DBE goal, the apparent lowest responsive bidder shall submit to the City of Mount Airy documentation of adequate good faith efforts made to reach the DBE goal.

One complete set and 3 copies of this information shall be received in the office of the City Engineer no later than 12:00 noon of the sixth calendar day following opening of bids, unless the sixth day falls on Saturday, Sunday or an official state holiday. In that situation, it is due in the office of the City Engineer no later than 12:00 noon on the next official state business day.

Note: Where the information submitted includes repetitious solicitation letters, it will be acceptable to submit a representative letter along with a distribution list of the firms that were solicited. Documentation of DBE quotations shall be a part of the good faith effort submittal. This documentation may include written subcontractor quotations, telephone log notations of verbal quotations, or other types of quotation documentation.

## **Consideration of Good Faith Effort for Projects with DBE Goals More Than Zero**

Adequate good faith efforts mean that the bidder took all necessary and reasonable steps to achieve the goal which, by their scope, intensity, and appropriateness, could reasonably be expected to obtain sufficient DBE participation. Adequate good faith efforts also mean that the bidder actively and aggressively sought DBE participation. Mere *pro forma* efforts are not considered good faith efforts.



The City of Mount Airy will consider the quality, quantity, and intensity of the different kinds of efforts a bidder has made. Listed below are examples of the types of actions a bidder will take in making a good faith effort to meet the goal and are not intended to be exclusive or exhaustive, nor is it intended to be a mandatory checklist.

- (A) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising, written notices, use of verifiable electronic means through the use of the NCDOT Directory of Transportation Firms) the interest of all certified DBEs who have the capability to perform the work of the contract. The bidder must solicit this interest within at least 10 days prior to bid opening to allow the DBEs to respond to the solicitation. Solicitation shall provide the opportunity to DBEs within the Division and surrounding Divisions where the project is located. The bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.
- (B) Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved.
  - (1) Where appropriate, break out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.
  - (2) Negotiate with subcontractors to assume part of the responsibility to meet the contract DBE goal when the work to be sublet includes potential for DBE participation (2<sup>nd</sup> and 3<sup>rd</sup> tier subcontractors).
- (C) Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
- (D)
  - (1) Negotiating in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.
  - (2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability

or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidding contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

- (E) Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associates and political or social affiliations (for example, union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.
- (F) Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or bidder.
- (G) Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.
- (H) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; Federal, State, and local minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs. Contact within 7 days from the bid opening NCDOT's Business Development Manager in the Business Opportunity and Work Force Development Unit to give notification of the bidder's inability to get DBE quotes.
- (I) Any other evidence that the bidder submits which shows that the bidder has made reasonable good faith efforts to meet the DBE goal.

In addition, the City of Mount Airy may take into account the following:

- (1) Whether the bidder's documentation reflects a clear and realistic plan for achieving the DBE goal.
- (2) The bidders' past performance in meeting the DBE goals.
- (3) The performance of other bidders in meeting the DBE goal. For example, when the apparent successful bidder fails to meet the DBE goal, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts the apparent successful bidder could have met the goal. If the apparent successful bidder fails to meet the DBE goal, but meets or exceeds the average DBE participation obtained by other bidders, the City of Mount Airy may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made a good faith effort.

If the City of Mount Airy does not award the contract to the apparent lowest responsive bidder, the City of Mount Airy reserves the right to award the contract to the next lowest responsive

bidder that can satisfy to the City of Mount Airy that the DBE goal can be met or that an adequate good faith effort has been made to meet the DBE goal.

### **Non-Good Faith Appeal**

The City Engineer will notify the contractor verbally and in writing of non-good faith. A contractor may appeal a determination of non-good faith made by the Goal Compliance Committee. If a contractor wishes to appeal the determination made by the Committee, they shall provide written notification to the City Engineer. The appeal shall be made within 2 business days of notification of the determination of non-good faith.

### **Counting DBE Participation Toward Meeting DBE Goal**

#### **(A) Participation**

The total dollar value of the participation by a committed DBE will be counted toward the contract goal requirement. The total dollar value of participation by a committed DBE will be based upon the value of work actually performed by the DBE and the actual payments to DBE firms by the Contractor.

#### **(B) Joint Checks**

Prior notification of joint check use shall be required when counting DBE participation for services or purchases that involves the use of a joint check. Notification shall be through submission of Form JC-1 (*Joint Check Notification Form*) and the use of joint checks shall be in accordance with the NCDOT's Joint Check Procedures.

#### **(C) Subcontracts (Non-Trucking)**

A DBE may enter into subcontracts. Work that a DBE subcontracts to another DBE firm may be counted toward the contract goal requirement. Work that a DBE subcontracts to a non-DBE firm does not count toward the contract goal requirement. If a DBE contractor or subcontractor subcontracts a significantly greater portion of the work of the contract than would be expected on the basis of standard industry practices, it shall be presumed that the DBE is not performing a commercially useful function. The DBE may present evidence to rebut this presumption to the City of Mount Airy. The City of Mount Airy's decision on the rebuttal of this presumption is subject to review by the Federal Highway Administration but is not administratively appealable to USDOT.

#### **(D) Joint Venture**

When a DBE performs as a participant in a joint venture, the Contractor may count toward its contract goal requirement a portion of the total value of participation with the DBE in the joint venture, that portion of the total dollar value being a distinct clearly defined portion of work that the DBE performs with its forces.

(E) Suppliers

A contractor may count toward its DBE requirement 60 percent of its expenditures for materials and supplies required to complete the contract and obtained from a DBE regular dealer and 100 percent of such expenditures from a DBE manufacturer.

(F) Manufacturers and Regular Dealers

A contractor may count toward its DBE requirement the following expenditures to DBE firms that are not manufacturers or regular dealers:

- (1) The fees or commissions charged by a DBE firm for providing a *bona fide* service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a DOT-assisted contract, provided the fees or commissions are determined to be reasonable and not excessive as compared with fees and commissions customarily allowed for similar services.
- (2) With respect to materials or supplies purchased from a DBE, which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site (but not the cost of the materials and supplies themselves), provided the fees are determined to be reasonable and not excessive as compared with fees customarily allowed for similar services.

**Commercially Useful Function**

(A) DBE Utilization

The Contractor may count toward its contract goal requirement only expenditures to DBEs that perform a commercially useful function in the work of a contract. A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE shall also be responsible with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, the City of Mount Airy will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and any other relevant factors.

(B) DBE Utilization in Trucking

The following factors will be used to determine if a DBE trucking firm is performing a commercially useful function:

- (1) The DBE shall be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there shall not be a contrived arrangement for the purpose of meeting DBE goals.
- (2) The DBE shall itself own and operate at least one fully licensed, insured, and operational truck used on the contract.
- (3) The DBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.
- (4) The DBE may subcontract the work to another DBE firm, including an owner-operator who is certified as a DBE. The DBE who subcontracts work to another DBE receives credit for the total value of the transportation services the subcontracted DBE provides on the contract.
- (5) The DBE may also subcontract the work to a non-DBE firm, including from an owner-operator. The DBE who subcontracts the work to a non-DBE is entitled to credit for the total value of transportation services provided by the non-DBE subcontractor not to exceed the value of transportation services provided by DBE-owned trucks on the contract. Additional participation by non-DBE subcontractors receives credit only for the fee or commission it receives as a result of the subcontract arrangement. The value of services performed under subcontract agreements between the DBE and the Contractor will not count towards the DBE contract requirement.
- (6) A DBE may lease truck(s) from an established equipment leasing business open to the general public. The lease must indicate that the DBE has exclusive use of and control over the truck. This requirement does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. This type of lease may count toward the DBE's credit as long as the driver is under the DBE's payroll.
- (7) Subcontracted/leased trucks shall display clearly on the dashboard the name of the DBE that they are subcontracted/leased to and their own company name if it is not identified on the truck itself. Magnetic door signs are not permitted.

## DBE Replacement

When a Contractor has relied on a commitment to a DBE firm (or an approved substitute DBE firm) to meet all or part of a contract goal requirement, the contractor shall not terminate the DBE for convenience. This includes, but is not limited to, instances in which the Contractor seeks to perform the work of the terminated subcontractor with another DBE subcontractor, a non-DBE subcontractor, or with the Contractor's own forces or those of an affiliate. A DBE may only be terminated after receiving the City Engineer's written approval based upon a finding of good cause for the termination.

All requests for replacement of a committed DBE firm shall be submitted to the City Engineer for approval on Form RF-1 (*DBE Replacement Request*). If the Contractor fails to follow this procedure, the Contractor may be disqualified from further bidding for a period of up to 6 months.

The Contractor shall comply with the following for replacement of a committed DBE:

### (A) Performance Related Replacement

When a committed DBE is terminated for good cause as stated above, an additional DBE that was submitted at the time of bid may be used to fulfill the DBE commitment. A good faith effort will only be required for removing a committed DBE if there were no additional DBEs submitted at the time of bid to cover the same amount of work as the DBE that was terminated.

If a replacement DBE is not found that can perform at least the same amount of work as the terminated DBE, the Contractor shall submit a good faith effort documenting the steps taken. Such documentation shall include, but not be limited to, the following:

- (1) Copies of written notification to DBEs that their interest is solicited in contracting the work defaulted by the previous DBE or in subcontracting other items of work in the contract.
- (2) Efforts to negotiate with DBEs for specific subbids including, at a minimum:
  - (a) The names, addresses, and telephone numbers of DBEs who were contacted.
  - (b) A description of the information provided to DBEs regarding the plans and specifications for portions of the work to be performed.
- (3) A list of reasons why DBE quotes were not accepted.
- (4) Efforts made to assist the DBEs contacted, if needed, in obtaining bonding or insurance required by the Contractor.

## (B) Decertification Replacement

- (1) When a committed DBE is decertified by the NCDOT after the SAF (*Subcontract Approval Form*) has been received by the City of Mount Airy, the City of Mount Airy will not require the Contractor to solicit replacement DBE participation equal to the remaining work to be performed by the decertified firm. The participation equal to the remaining work performed by the decertified firm will count toward the contract goal requirement.
- (2) When a committed DBE is decertified prior to the City of Mount Airy receiving the SAF (*Subcontract Approval Form*) for the named DBE firm, the Contractor shall take all necessary and reasonable steps to replace the DBE subcontractor with another DBE subcontractor to perform at least the same amount of work to meet the DBE goal requirement. If a DBE firm is not found to do the same amount of work, a good faith effort must be submitted to City Engineer (see A herein for required documentation).

## Changes in the Work

When the City Engineer makes changes that result in the reduction or elimination of work to be performed by a committed DBE, the Contractor will not be required to seek additional participation. When the City Engineer makes changes that result in additional work to be performed by a DBE based upon the Contractor's commitment, the DBE shall participate in additional work to the same extent as the DBE participated in the original contract work.

When the City Engineer makes changes that result in extra work, which has more than a minimal impact on the contract amount, the Contractor shall seek additional participation by DBEs unless otherwise approved by the City Engineer.

When the City Engineer makes changes that result in an alteration of plans or details of construction, and a portion or all of the work had been expected to be performed by a committed DBE, the Contractor shall seek participation by DBEs unless otherwise approved by the City Engineer.

When the Contractor requests changes in the work that result in the reduction or elimination of work that the Contractor committed to be performed by a DBE, the Contractor shall seek additional participation by DBEs equal to the reduced DBE participation caused by the changes.

## Reports and Documentation

A SAF (*Subcontract Approval Form*) shall be submitted for all work which is to be performed by a DBE subcontractor. The City of Mount Airy reserves the right to require copies of actual subcontract agreements involving DBE subcontractors.

When using transportation services to meet the contract commitment, the Contractor shall submit a proposed trucking plan in addition to the SAF. The plan shall be submitted prior to beginning

construction on the project. The plan shall include the names of all trucking firms proposed for use, their certification type(s), the number of trucks owned by the firm, as well as the individual truck identification numbers, and the line item(s) being performed.

Within 30 calendar days of entering into an agreement with a DBE for materials, supplies or services, not otherwise documented by the SAF as specified above, the Contractor shall furnish the City Engineer a copy of the agreement. The documentation shall also indicate the percentage (60% or 100%) of expenditures claimed for DBE credit.

### **Reporting Disadvantaged Business Enterprise Participation**

The Contractor shall provide the City Engineer with an accounting of payments made to all DBE firms, including material suppliers and contractors at all levels (prime, subcontractor, or second tier subcontractor). This accounting shall be furnished to the City Engineer for any given month by the end of the following month. Failure to submit this information accordingly may result in the following action:

- (A) Withholding of money due in the next partial pay estimate; or
- (B) Removal of an approved contractor from the prequalified bidders' list or the removal of other entities from the approved subcontractors list. (LGA may add to, change or delete this section.)

While each contractor (prime, subcontractor, 2nd tier subcontractor) is responsible for accurate accounting of payments to DBEs, it shall be the prime contractor's responsibility to report all monthly and final payment information in the correct reporting manner.

Failure on the part of the Contractor to submit the required information in the time frame specified may result in the disqualification of that contractor and any affiliate companies from further bidding until the required information is submitted.

Failure on the part of any subcontractor to submit the required information in the time frame specified may result in the disqualification of that contractor and any affiliate companies from being approved for work on future projects until the required information is submitted.

Contractors reporting transportation services provided by non-DBE lessees shall evaluate the value of services provided during the month of the reporting period only.

At any time, the City Engineer can request written verification of subcontractor payments.

The Contractor shall report the accounting of payments on the NCDOT's DBE-IS (*Subcontractor Payment Information*) with each invoice. Invoices will not be processed for payment until the DBE-IS is received.



### **Failure to Meet Contract Requirements**

Failure to meet contract requirements in accordance with Subarticle 102-15(J) of the *2012 Standard Specifications* may be cause to disqualify the Contractor.

**CERTIFICATION FOR FEDERAL-AID CONTRACTS:**

(3-21-90)

SP1 G85

The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

- (A) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (B) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, *Disclosure Form to Report Lobbying*, in accordance with its instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by *Section 1352, Title 31, U.S. Code*. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such subrecipients shall certify and disclose accordingly.

**U.S. DEPARTMENT OF TRANSPORTATION HOTLINE:**

(11-22-94)

108-5

SP1 G100

To report bid rigging activities call: **1-800-424-9071**

The U.S. Department of Transportation (DOT) operates the above toll-free hotline Monday through Friday, 8:00 a.m. to 5:00 p.m. eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the hotline to report such activities.

The hotline is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

**SUBSURFACE INFORMATION:**

(7-1-95)

450

SP1 G112 D

Subsurface information is available on the roadway and structure portions of this project.

**LOCATING EXISTING UNDERGROUND UTILITIES:**

(3-20-12)

105

SP1 G115

Revise the *2012 Standard Specifications* as follows:

**Page 1-43, Article 105-8, line 28, after the first sentence,** add the following:

Identify excavation locations by means of pre-marking with white paint, flags, or stakes or provide a specific written description of the location in the locate request.

plans and if applicable, the certification number of the Level III-A Certified Designer on the design of the project erosion and sediment control/stormwater plan.

### **Preconstruction Meeting**

Furnish the names of the *Certified Erosion and Sediment Control/Stormwater Supervisor*, *Certified Foremen*, *Certified Installers* and *Certified Designer* and notify the Engineer of changes in certified personnel over the life of the contract within 2 days of change.

### **Ethical Responsibility**

Any company performing work for the North Carolina Department of Transportation has the ethical responsibility to fully disclose any reprimand or dismissal of an employee resulting from improper testing or falsification of records.

### **Revocation or Suspension of Certification**

Upon recommendation of the Chief Engineer to the certification entity, certification for *Supervisor*, *Certified Foremen*, *Certified Installers* and *Certified Designer* may be revoked or suspended with the issuance of an *Immediate Corrective Action (ICA)*, *Notice of Violation (NOV)*, or *Cease and Desist Order* for erosion and sediment control/stormwater related issues.

The Chief Engineer may recommend suspension or permanent revocation of certification due to the following:

- (A) Failure to adequately perform the duties as defined within this certification provision.
- (B) Issuance of an ICA, NOV, or Cease and Desist Order.
- (C) Failure to fully perform environmental commitments as detailed within the permit conditions and specifications.
- (D) Demonstration of erroneous documentation or reporting techniques.
- (E) Cheating or copying another candidate's work on an examination.
- (F) Intentional falsification of records.
- (G) Directing a subordinate under direct or indirect supervision to perform any of the above actions.
- (H) Dismissal from a company for any of the above reasons.
- (I) Suspension or revocation of one's certification by another entity.

Suspension or revocation of a certification will be sent by certified mail to the certificant and the Corporate Head of the company that employs the certificant.

A certificant has the right to appeal any adverse action which results in suspension or permanent revocation of certification by responding, in writing, to the Chief Engineer within 10 calendar days after receiving notice of the proposed adverse action.

**DOMESTIC STEEL:**

(4-16-13)

106

SP1 G120

Revise the *2012 Standard Specifications* as follows:

**Page 1-49, Subarticle 106-1(B) Domestic Steel, lines 2-7,** replace the first paragraph with the following:

All steel and iron products that are permanently incorporated into this project shall be produced in the United States except minimal amounts of foreign steel and iron products may be used provided the combined material cost of the items involved does not exceed 0.1% of the total amount bid for the entire project or \$2,500, whichever is greater. If invoices showing the cost of the material are not provided, the amount of the bid item involving the foreign material will be used for calculations. This minimal amount of foreign produced steel and iron products permitted for use is not applicable to high strength fasteners. Domestically produced high strength fasteners are required.

## **TWELVE MONTH GUARANTEE:**

(7-15-03)

108

SP1 G145

- (A) The Contractor shall guarantee materials and workmanship against latent and patent defects arising from faulty materials, faulty workmanship or negligence for a period of twelve months following the date of final acceptance of the work for maintenance and shall replace such defective materials and workmanship without cost to the Department. The Contractor will not be responsible for damage due to faulty design, normal wear and tear, for negligence on the part of the Department, and/or for use in excess of the design.
- (B) Where items of equipment or material carry a manufacturer's guarantee for any period in excess of twelve months, then the manufacturer's guarantee shall apply for that particular piece of equipment or material. The Department's first remedy shall be through the manufacturer although the Contractor is responsible for invoking the warranted repair work with the manufacturer. The Contractor's responsibility shall be limited to the term of the manufacturer's guarantee. NCDOT would be afforded the same warranty as provided by the Manufacturer.

This guarantee provision shall be invoked only for major components of work in which the Contractor would be wholly responsible for under the terms of the contract. Examples would include pavement structures, bridge components, and sign structures. This provision will not be used as a mechanism to force the Contractor to return to the project to make repairs or perform additional work that the Department would normally compensate the Contractor for. In addition, routine maintenance activities (i.e. mowing grass, debris removal, ruts in earth shoulders,) are not parts of this guarantee.

Appropriate provisions of the payment and/or performance bonds shall cover this guarantee for the project.

To ensure uniform application statewide the Division Engineer will forward details regarding the circumstances surrounding any proposed guarantee repairs to the Chief Engineer for review and approval prior to the work being performed.



## **GIFTS FROM VENDORS AND CONTRACTORS:**

(12-15-09)

107-1

SP1 G152

By Executive Order 24, issued by Governor Perdue, and *N.C.G.S. § 133-32*, it is unlawful for any vendor or contractor (i.e. architect, bidder, contractor, construction manager, design professional, engineer, landlord, offeror, seller, subcontractor, supplier, or vendor), to make gifts or to give favors to any State employee of the Governor's Cabinet Agencies (i.e. Administration, Commerce, Correction, Crime Control and Public Safety, Cultural Resources, Environment and Natural Resources, Health and Human Services, Juvenile Justice and Delinquency Prevention, Revenue, Transportation, and the Office of the Governor). This prohibition covers those vendors and contractors who:

- (A) Have a contract with a governmental agency; or
- (B) Have performed under such a contract within the past year; or
- (C) Anticipate bidding on such a contract in the future.

For additional information regarding the specific requirements and exemptions, vendors and contractors are encouraged to review Executive Order 24 and *N.C.G.S. § 133-32*.

Executive Order 24 also encouraged and invited other State Agencies to implement the requirements and prohibitions of the Executive Order to their agencies. Vendors and contractors should contact other State Agencies to determine if those agencies have adopted Executive Order 24.

## **EROSION AND SEDIMENT CONTROL/STORMWATER CERTIFICATION:**

(1-16-07) (Rev 9-18-12)

105-16, 225-2, 16

SP1 G180

### **General**

Schedule and conduct construction activities in a manner that will minimize soil erosion and the resulting sedimentation and turbidity of surface waters. Comply with the requirements herein regardless of whether or not a National Pollution discharge Elimination System (NPDES) permit for the work is required.

Establish a chain of responsibility for operations and subcontractors' operations to ensure that the *Erosion and Sediment Control/Stormwater Pollution Prevention Plan* is implemented and maintained over the life of the contract.

- (A) *Certified Supervisor* - Provide a certified Erosion and Sediment Control/Stormwater Supervisor to manage the Contractor and subcontractor operations, insure compliance with Federal, State and Local ordinances and regulations, and manage the Quality Control Program.
- (B) *Certified Foreman* - Provide a certified, trained foreman for each construction operation that increases the potential for soil erosion or the possible sedimentation and turbidity of surface waters.
- (C) *Certified Installer* - Provide a certified installer to install or direct the installation for erosion or sediment/stormwater control practices.
- (D) *Certified Designer* - Provide a certified designer for the design of the erosion and sediment control/stormwater component of reclamation plans and, if applicable, for the design of the project erosion and sediment control/stormwater plan.

### **Roles and Responsibilities**

- (A) *Certified Erosion and Sediment Control/Stormwater Supervisor* - The Certified Supervisor shall be Level II and responsible for ensuring the erosion and sediment control/stormwater plan is adequately implemented and maintained on the project and for conducting the quality control program. The Certified Supervisor shall be on the project within 24 hours notice from initial exposure of an erodible surface to the project's final acceptance. Perform the following duties:
  - (1) *Manage Operations* - Coordinate and schedule the work of subcontractors so that erosion and sediment control/stormwater measures are fully executed for each operation and in a timely manner over the duration of the contract.
    - (a) *Oversee the work of subcontractors* so that appropriate erosion and sediment control/stormwater preventive measures are conformed to at each stage of the work.

- (b) Prepare the required National Pollutant Discharge Elimination System (NPDES) Inspection Record and submit to the Engineer.
  - (c) Attend all weekly or monthly construction meetings to discuss the findings of the NPDES inspection and other related issues.
  - (d) Implement the erosion and sediment control/stormwater site plans requested.
  - (e) Provide any needed erosion and sediment control/stormwater practices for the Contractor's temporary work not shown on the plans, such as, but not limited to work platforms, temporary construction, pumping operations, plant and storage yards, and cofferdams.
  - (f) Acquire applicable permits and comply with requirements for borrow pits, dewatering, and any temporary work conducted by the Contractor in jurisdictional areas.
  - (g) Conduct all erosion and sediment control/stormwater work in a timely and workmanlike manner.
  - (h) Fully perform and install erosion and sediment control/stormwater work prior to any suspension of the work.
  - (i) Coordinate with Department, Federal, State and Local Regulatory agencies on resolution of erosion and sediment control/stormwater issues due to the Contractor's operations.
  - (j) Ensure that proper cleanup occurs from vehicle tracking on paved surfaces or any location where sediment leaves the Right-of-Way.
  - (k) Have available a set of erosion and sediment control/stormwater plans that are initialed and include the installation date of Best Management Practices. These practices shall include temporary and permanent groundcover and be properly updated to reflect necessary plan and field changes for use and review by Department personnel as well as regulatory agencies.
- (2) Requirements set forth under the NPDES Permit - The Department's NPDES Stormwater permit (NCS000250) outlines certain objectives and management measures pertaining to construction activities. The permit references *NCG010000, General Permit to Discharge Stormwater* under the NPDES, and states that the Department shall incorporate the applicable requirements into its delegated Erosion and Sediment Control Program for construction activities disturbing one or more acres of land. The Department further incorporates these requirements on all contracted bridge and culvert work at jurisdictional waters, regardless of size. Some of the requirements are, but are not limited to:
- (a) Control project site waste to prevent contamination of surface or ground waters of the state, i.e. from equipment operation/maintenance, construction materials, concrete washout, chemicals, litter, fuels, lubricants, coolants, hydraulic fluids, any other petroleum products, and sanitary waste.
  - (b) Inspect erosion and sediment control/stormwater devices and stormwater discharge outfalls at least once every 7 calendar days, twice weekly for

construction related *Federal Clean Water Act, Section 303(d)* impaired streams with turbidity violations, and within 24 hours after a significant rainfall event of 0.5 inch that occurs within a 24 hour period.

- (c) Maintain an onsite rain gauge or use the Department's Multi-Sensor Precipitation Estimate website to maintain a daily record of rainfall amounts and dates.
  - (d) Maintain erosion and sediment control/stormwater inspection records for review by Department and Regulatory personnel upon request.
  - (e) Implement approved reclamation plans on all borrow pits, waste sites and staging areas.
  - (f) Maintain a log of turbidity test results as outlined in the Department's Procedure for Monitoring Borrow Pit Discharge.
  - (g) Provide secondary containment for bulk storage of liquid materials.
  - (h) Provide training for employees concerning general erosion and sediment control/stormwater awareness, the Department's NPDES Stormwater Permit NCS000250 requirements, and the applicable requirements of the *General Permit, NCG010000*.
  - (i) Report violations of the NPDES permit to the Engineer immediately who will notify the Division of Water Quality Regional Office within 24 hours of becoming aware of the violation.
- (3) Quality Control Program - Maintain a quality control program to control erosion, prevent sedimentation and follow provisions/conditions of permits. The quality control program shall:
- (a) Follow permit requirements related to the Contractor and subcontractors' construction activities.
  - (b) Ensure that all operators and subcontractors on site have the proper erosion and sediment control/stormwater certification.
  - (c) Notify the Engineer when the required certified erosion and sediment control/stormwater personnel are not available on the job site when needed.
  - (d) Conduct the inspections required by the NPDES permit.
  - (e) Take corrective actions in the proper timeframe as required by the NPDES permit for problem areas identified during the NPDES inspections.
  - (f) Incorporate erosion control into the work in a timely manner and stabilize disturbed areas with mulch/seed or vegetative cover on a section-by-section basis.
  - (g) Use flocculants approved by state regulatory authorities where appropriate and where required for turbidity and sedimentation reduction.
  - (h) Ensure proper installation and maintenance of temporary erosion and sediment control devices.
  - (i) Remove temporary erosion or sediment control devices when they are no longer necessary as agreed upon by the Engineer.

- (j) The Contractor's quality control and inspection procedures shall be subject to review by the Engineer. Maintain NPDES inspection records and make records available at all times for verification by the Engineer.
- (B) *Certified Foreman* - At least one Certified Foreman shall be onsite for each type of work listed herein during the respective construction activities to control erosion, prevent sedimentation and follow permit provisions:
  - (1) Foreman in charge of grading activities
  - (2) Foreman in charge of bridge or culvert construction over jurisdictional areas
  - (3) Foreman in charge of utility activities

The Contractor may request to use the same person as the Level II Supervisor and Level II Foreman. This person shall be onsite whenever construction activities as described above are taking place. This request shall be approved by the Engineer prior to work beginning.

The Contractor may request to name a single Level II Foreman to oversee multiple construction activities on small bridge or culvert replacement projects. This request shall be approved by the Engineer prior to work beginning.

- (C) *Certified Installers* - Provide at least one onsite, Level I Certified Installer for each of the following erosion and sediment control/stormwater crew:
  - (1) Seeding and Mulching
  - (2) Temporary Seeding
  - (3) Temporary Mulching
  - (4) Sodding
  - (5) Silt fence or other perimeter erosion/sediment control device installations
  - (6) Erosion control blanket installation
  - (7) Hydraulic tackifier installation
  - (8) Turbidity curtain installation
  - (9) Rock ditch check/sediment dam installation
  - (10) Ditch liner/matting installation
  - (11) Inlet protection
  - (12) Riprap placement
  - (13) Stormwater BMP installations (such as but not limited to level spreaders, retention/detention devices)
  - (14) Pipe installations within jurisdictional areas

If a Level I *Certified Installer* is not onsite, the Contractor may substitute a Level II Foreman for a Level I Installer, provided the Level II Foreman is not tasked to another crew requiring Level II Foreman oversight.

- (D) *Certified Designer* - Include the certification number of the Level III-B Certified Designer on the erosion and sediment control/stormwater component of all reclamation

Chief Engineer  
1536 Mail Service Center  
Raleigh, NC 27699-1536

Failure to appeal within 10 calendar days will result in the proposed adverse action becoming effective on the date specified on the certified notice. Failure to appeal within the time specified will result in a waiver of all future appeal rights regarding the adverse action taken. The certificant will not be allowed to perform duties associated with the certification during the appeal process.

The Chief Engineer will hear the appeal and make a decision within 7 days of hearing the appeal. Decision of the Chief Engineer will be final and will be made in writing to the certificant.

If a certification is temporarily suspended, the certificant shall pass any applicable written examination and any proficiency examination, at the conclusion of the specified suspension period, prior to having the certification reinstated.

### **Measurement and Payment**

*Certified Erosion and Sediment Control/Stormwater Supervisor, Certified Foremen, Certified Installers and Certified Designer* will be incidental to the project for which no direct compensation will be made.

## **PROCEDURE FOR MONITORING BORROW PIT DISCHARGE:**

(2-20-07) (Rev. 3-20-13)

105-16, 230, 801

SP1 G181

Water discharge from borrow pit sites shall not cause surface waters to exceed 50 NTUs (nephelometric turbidity unit) in streams not designated as trout waters and 10 NTUs in streams, lakes or reservoirs designated as trout waters. For lakes and reservoirs not designated as trout waters, the turbidity shall not exceed 25 NTUs. If the turbidity exceeds these levels due to natural background conditions, the existing turbidity level shall not be increased.

If during any operating day, the downstream water quality exceeds the standard, the Contractor shall do all of the following:

- (A) Either cease discharge or modify the discharge volume or turbidity levels to bring the downstream turbidity levels into compliance, or
- (B) Evaluate the upstream conditions to determine if the exceedance of the standard is due to natural background conditions. If the background turbidity measurements exceed the standard, operation of the pit and discharge can continue as long as the stream turbidity levels are not increased due to the discharge.
- (C) Measure and record the turbidity test results (time, date and sampler) at all defined sampling locations 30 minutes after startup and at a minimum, one additional sampling of all sampling locations during that 24-hour period in which the borrow pit is discharging.
- (D) Notify DWQ within 24 hours of any stream turbidity standard exceedances that are not brought into compliance.

During the Environmental Assessment required by Article 230-4 of the *2012 Standard Specifications*, the Contractor shall define the point at which the discharge enters into the State's surface waters and the appropriate sampling locations. Sampling locations shall include points upstream and downstream from the point at which the discharge enters these waters. Upstream sampling location shall be located so that it is not influenced by backwater conditions and represents natural background conditions. Downstream sampling location shall be located at the point where complete mixing of the discharge and receiving water has occurred.

The discharge shall be closely monitored when water from the dewatering activities is introduced into jurisdictional wetlands. Any time visible sedimentation (deposition of sediment) on the wetland surface is observed, the dewatering activity will be suspended until turbidity levels in the stilling basin can be reduced to a level where sediment deposition does not occur. Staining of wetland surfaces from suspended clay particles, occurring after evaporation or infiltration, does not constitute sedimentation. No activities shall occur in wetlands that adversely affect the functioning of a wetland. Visible sedimentation will be considered an indication of possible adverse impacts on wetland use.

The Engineer will perform independent turbidity tests on a random basis. These results will be maintained in a log within the project records. Records will include, at a minimum, turbidity test results, time, date and name of sampler. Should the Department's test results exceed those of the

Contractor's test results, an immediate test shall be performed jointly with the results superseding the previous test results of both the Department and the Contractor.

The Contractor shall use the *NCDOT Turbidity Reduction Options for Borrow Pits Matrix*, available at [http://www.ncdot.gov/doh/operations/dp\\_chief\\_eng/roadside/fieldops/downloads/Files/TurbidityReductionOptionSheet.pdf](http://www.ncdot.gov/doh/operations/dp_chief_eng/roadside/fieldops/downloads/Files/TurbidityReductionOptionSheet.pdf) to plan, design, construct, and maintain BMPs to address water quality standards. Tier I Methods include stilling basins which are standard compensatory BMPs. Other Tier I methods are noncompensatory and shall be used when needed to meet the stream turbidity standards. Tier II Methods are also noncompensatory and are options that may be needed for protection of rare or unique resources or where special environmental conditions exist at the site which have led to additional requirements being placed in the DWQ's 401 Certifications and approval letters, Isolated Wetland Permits, Riparian Buffer Authorization or a DOT Reclamation Plan's Environmental Assessment for the specific site. Should the Contractor exhaust all Tier I Methods on a site exclusive of rare or unique resources or special environmental conditions, Tier II Methods may be required by regulators on a case by case basis per supplemental agreement.

The Contractor may use cation exchange capacity (CEC) values from proposed site borings to plan and develop the bid for the project. CEC values exceeding 15 milliequivalents per 100 grams of soil may indicate a high potential for turbidity and should be avoided when dewatering into surface water is proposed.

No additional compensation for monitoring borrow pit discharge will be paid.



**EMPLOYMENT:**

(11-15-11) (Rev. 1-17-12)

108, 102

SP1 G184

Revise the *2012 Standard Specifications* as follows:

**Page 1-20, Subarticle 102-15(O)**, delete and replace with the following:

**(O)** Failure to restrict a former Department employee as prohibited by Article 108-5.

**Page 1-65, Article 108-5 Character of Workmen, Methods, and Equipment, line 32**, delete all of line 32, the first sentence of the second paragraph and the first word of the second sentence of the second paragraph.

**STATE HIGHWAY ADMINISTRATOR TITLE CHANGE:**

(9-18-12)

SP1 G185

Revise the *2012 Standard Specifications* as follows:

Replace all references to “State Highway Administrator” with “Chief Engineer”.

## **INTERMEDIATE CONTRACT TIME NUMBER 1 AND LIQUIDATED DAMAGES:**

(2-20-07)

108

SP1 G14 A

The Contractor shall complete the required work of installing, maintaining, and removing the traffic control devices for lane closures and restoring traffic to the existing traffic pattern. The Contractor shall not close or narrow a lane of traffic on **Worth Street, US 52, Rockford Street, or Carter Street** during the following time restrictions:

### **DAY AND TIME RESTRICTIONS**

#### **6:00 AM to 9:00 AM and 4:00 PM to 6:00 PM**

In addition, the Contractor shall not close or narrow a lane of traffic on **Worth Street, US 52, Rockford Street, or Carter Street**, detain and/or alter the traffic flow on or during holidays, holiday weekends, special events, or any other time when traffic is unusually heavy, including the following schedules:

### **HOLIDAY AND HOLIDAY WEEKEND LANE CLOSURE RESTRICTIONS**

1. For **unexpected occurrence** that creates unusually high traffic volumes, as directed by the Engineer.
2. For **New Year's Day**, between the hours of **4:00 PM** December 31st and **9:00 AM** January 2nd. If New Year's Day is on a Friday, Saturday, Sunday or Monday, then until **9:00 AM** the following Tuesday.
3. For **Easter**, between the hours of **4:00 PM** Thursday and **9:00 AM** Monday.
4. For **Memorial Day**, between the hours of **4:00 PM** Friday and **9:00 AM** Tuesday.
5. For **Independence Day**, between the hours of **4:00 PM** the day before Independence Day and **9:00 AM** the day after Independence Day.

If **Independence Day** is on a Friday, Saturday, Sunday or Monday, then between the hours of **4:00 PM** the Thursday before Independence Day and **9:00 AM** the Tuesday after Independence Day.

6. For **Labor Day**, between the hours of **4:00 PM** Friday and **9:00 AM** Tuesday.
7. For **Thanksgiving Day**, between the hours of **4:00 PM** Tuesday and **9:00 AM** Monday.
8. For **Christmas**, between the hours of **4:00 PM** the Friday before the week of Christmas Day and **9:00 AM** the following Tuesday after the week of Christmas Day.
9. Coordinate special events in the area with the City and perform lane closures by the engineer.

Holidays and holiday weekends shall include New Year's, Easter, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas. The Contractor shall schedule his work so that lane closures will not be required during these periods, unless otherwise directed by the Engineer.

The time of availability for this intermediate contract work shall be the time the Contractor begins to install all traffic control devices for lane closures according to the time restrictions listed herein.

The completion time for this intermediate contract work shall be the time the Contractor is required to complete the removal of all traffic control devices for lane closures according to the time restrictions stated above and place traffic in the existing traffic pattern.

The liquidated damages are **Five Hundred Dollars (\$500)** per hour.

## **PERMANENT VEGETATION ESTABLISHMENT:**

(2-16-12) (Rev. 10-15-13)

104

SP1 G16

Establish a permanent stand of the vegetation mixture shown in the contract. During the period between initial vegetation planting and final project acceptance, perform all work necessary to establish permanent vegetation on all erodible areas within the project limits, as well as, in borrow and waste pits. This work shall include erosion control device maintenance and installation, repair seeding and mulching, supplemental seeding and mulching, mowing, and fertilizer topdressing, as directed. All work shall be performed in accordance with the applicable section of the *2012 Standard Specifications*. All work required for initial vegetation planting shall be performed as a part of the work necessary for the completion and acceptance of the Intermediate Contract Time (ICT). Between the time of ICT and Final Project acceptance, or otherwise referred to as the vegetation establishment period, the Department will be responsible for preparing the required National Pollutant Discharge Elimination System (NPDES) inspection records.

Once the Engineer has determined that the permanent vegetation establishment requirement has been achieved at an 80% vegetation density (the amount of established vegetation per given area to stabilize the soil) and no erodible areas exist within the project limits, the Contractor will be notified to remove the remaining erosion control devices that are no longer needed. The Contractor will be responsible for, and shall correct any areas disturbed by operations performed in permanent vegetation establishment and the removal of temporary erosion control measures, whether occurring prior to or after placing traffic on the project.

Payment for *Response for Erosion Control, Seeding and Mulching, Repair Seeding, Supplemental Seeding, Mowing, Fertilizer Topdressing, Silt Excavation, and Stone for Erosion Control* will be made at contract unit prices for the affected items. Work required that is not represented by contract line items will be paid in accordance with Articles 104-7 or 104-3 of the *2012 Standard Specifications*. No additional compensation will be made for maintenance and removal of temporary erosion control items.

**RESOURCE CONSERVATION:**

(5-21-13)

104-13

SP1 G118

In accordance with North Carolina Executive Order 156, NCGS 130A-309.14(2), and NCGS 136-28.8, it is the policy of the Department to aid in the reduction of materials that become a part of our solid waste stream, to divert materials from landfills, and to find ways to recycle and reuse materials for the benefit of the Citizens of North Carolina.

Initiate, develop and use products and construction methods that incorporate the use of recycled or solid waste products in accordance with Article 104-13 of the *2012 Standard Specifications*. Report the quantities of reused or recycled materials either incorporated in the project or diverted from landfills on the Project Construction Reuse and Recycling Reporting Form.

A location-based tool for finding local recycling facilities and the Project Construction Reuse and Recycling Reporting Form are available at:

<http://connect.ncdot.gov/resources/Environmental/Pages/North-Carolina-Recycling-Locations.aspx>

## **TWELVE MONTH GUARANTEE – LGA Projects**

(10-7-13)

108

SP1 G146

- (A) The Contractor shall guarantee materials and workmanship against latent and patent defects arising from faulty materials, faulty workmanship or negligence for a period of twelve months following the date of final acceptance of the work for maintenance and shall replace such defective materials and workmanship without cost to the **City of Mount Airy**. The Contractor will not be responsible for damage due to faulty design, normal wear and tear, for negligence on the part of **The City of Mount Airy**, and/or for use in excess of the design.
- (B) Where items of equipment or material carry a manufacturer's guarantee for any period in excess of twelve months, then the manufacturer's guarantee shall apply for that particular piece of equipment or material. The **City of Mount Airy**'s first remedy shall be through the manufacturer although the Contractor is responsible for invoking the warranted repair work with the manufacturer. The Contractor's responsibility shall be limited to the term of the manufacturer's guarantee. The **City of Mount Airy** would be afforded the same warranty as provided by the Manufacturer.

This guarantee provision shall be invoked only for major components of work in which the Contractor would be wholly responsible for under the terms of the contract. Examples would include pavement structures, bridge components, and sign structures. This provision will not be used as a mechanism to force the Contractor to return to the project to make repairs or perform additional work that the **City of Mount Airy** would normally compensate the Contractor for. In addition, routine maintenance activities (i.e. mowing grass, debris removal, ruts in earth shoulders,) are not parts of this guarantee.

Appropriate provisions of the payment and/or performance bonds shall cover this guarantee for the project.

**LIABILITY INSURANCE:**

(5-20-14)

SP1 G160

Revise the *2012 Standard Specifications* as follows:

**Page 1-60, Article 107-15 LIABILITY INSURANCE, line 16,** add the following as the second sentence of the third paragraph:

Prior to beginning services, all contractors shall provide proof of coverage issued by a workers' compensation insurance carrier, or a certificate of compliance issued by the Department of Insurance for self-insured subcontractors, irrespective of whether having regularly in service fewer than three employees.



**REVISION TO FHWA-1273 CONCERNING TAP-FUNDED PROJECTS:**

(10-15-13)

SP1 G190

Revise the *Standard Special Provision FHWA-1273 Required Contract Provisions Federal-Aid Construction Contracts* as follows:

**Replace the last sentence in Section I.4 and the third sentence in the first paragraph of Section IV with the following:**

Transportation Alternative Program (TAP)-funded projects shall have the same requirements as Federal-Aid highway projects except physical location exceptions will not apply.

**E-VERIFY COMPLIANCE:**

(2-18-14)

SP1 G200

Contractors and subcontractors shall comply with the E-Verify requirements of N.C.G.S. Chapter 64, Article 2. Contractors are directed to review the foregoing laws. By signing this bid, any awarded Contractor certifies its compliance with the E-Verify requirements and will do so on a periodic basis thereafter as may be required by the Department.

**PROJECT SPECIAL PROVISIONS**

**ROADWAY**

**CLEARING AND GRUBBING - METHOD II:**

(9-17-02) (Rev. 1-17-12)

200

SP2 R02A

Perform clearing on this project to the limits established by Method “II” shown on Standard Drawing No. 200.02 of the *2012 Roadway Standard Drawings*.

**SHOULDER AND FILL SLOPE MATERIAL:**

(5-21-02)

235, 560

SP2 R45 A

**Description**

Perform the required shoulder and slope construction for this project in accordance with the applicable requirements of Section 560 and Section 235 of the *2012 Standard Specifications*.

**Measurement and Payment**

Where the material has been obtained from an authorized stockpile or from a borrow source and *Borrow Excavation* is not included in the contract, no direct payment will be made for this work, as the cost of this work will be part of the work being paid at the contract lump sum price for *Grading*. If *Borrow Excavation* is included in this contract and the material has been obtained from an authorized stockpile or from a borrow source, measurement and payment will be as provided in Section 230 of the *2012 Standard Specifications* for *Borrow Excavation*.

**SELECT GRANULAR MATERIAL:**

(3-16-10) (Rev. 1-17-12)

265

SP2 R80

Revise the *2012 Standard Specifications* as follows:

**Page 2-28, Article 265-2 MATERIALS**, add the following:

Use only Class III select material for select granular material.

**Page 2-28, Article 265-4 MEASUREMENT AND PAYMENT, lines 13-30**, replace all occurrences of *Select Granular Material* with *Select Granular Material, Class III*.

**Page 2-28, Article 265-4 MEASUREMENT AND PAYMENT, after line 31**, delete the pay item and replace with the following:

Payment will be made under:

**Pay Item**

Select Granular Material, Class III

**Pay Unit**

Cubic Yard

**PIPE INSTALLATION:**

(11-20-12)

300

SP3 R01

Revise the *2012 Standard Specifications* as follows:

**Page 3-1, Article 300-2, Materials**, line 23-24, replace sentence with:

Provide foundation conditioning geotextile in accordance with Section 1056 for Type 4 geotextile.

**INCIDENTAL STONE BASE:**

(7-1-95) (Rev.8-21-12)

545

SP5 R28R

**Description**

Place incidental stone base on driveways, mailboxes, etc. immediately after paving and do not have the paving operations exceed stone base placement by more than one week without written permission of the Engineer.

**Materials and Construction**

Provide and place incidental stone base in accordance with Section 545 of the *2012 Standard Specifications*.

**Measurement and Payment**

*Incidental Stone Base* will be measured and paid in accordance with Article 545-6 of the *2012 Standard Specifications*.



**ASPHALT PAVEMENTS - SUPERPAVE:**

(6-19-12) (Rev. 10-21-14)

605, 609, 610, 650, 660

SP6 R01

Revise the 2012 *Standard Specifications* as follows:

**Page 6-3, Article 605-7 APPLICATION RATES AND TEMPERATURES**, replace this article, including Table 601-1, with the following:

Apply tack coat uniformly across the existing surface at target application rates shown in Table 605-1.

<b>TABLE 605-1 APPLICATION RATES FOR TACK COAT</b>	
<b>Existing Surface</b>	<b>Target Rate (gal/sy)</b>
	<b>Emulsified Asphalt</b>
New Asphalt	0.04 ± 0.01
Oxidized or Milled Asphalt	0.06 ± 0.01
Concrete	0.08 ± 0.01

Apply tack coat at a temperature within the ranges shown in Table 605-2. Tack coat shall not be overheated during storage, transport or at application.

<b>TABLE 605-2 APPLICATION TEMPERATURE FOR TACK COAT</b>	
<b>Asphalt Material</b>	<b>Temperature Range</b>
Asphalt Binder, Grade PG 64-22	350 - 400°F
Emulsified Asphalt, Grade RS-1H	130 - 160°F
Emulsified Asphalt, Grade CRS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-1H	130 - 160°F
Emulsified Asphalt, Grade HFMS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-2	130 - 160°F

**Page 6-7, Article 609-3 FIELD VERIFICATION OF MIXTURE AND JOB MIX FORMULA ADJUSTMENTS**, lines 35-37, delete the second sentence of the second paragraph.

**Page 6-18, Article 610-1 DESCRIPTION**, lines 40-41, delete the last sentence of the last paragraph.

**Page 6-19, Subarticle 610-3(A) Mix Design-General**, line 5, add the following as the first paragraph:

Warm mix asphalt (WMA) is allowed for use at the Contractor's option in accordance with the NCDOT Approved Products List for WMA Technologies available at:

<https://connect.ncdot.gov/resources/Materials/MaterialsResources/Warm%20Mix%20Asphalt%20Approved%20List.pdf>

**Page 6-21, Subarticle 610-3(C) Job Mix Formula (JMF)**, replace Table 610-1 with the following:

<b>TABLE 610-1 DESIGN MIXING TEMPERATURE AT THE ASPHALT PLANT<sup>A</sup></b>		
<b>Binder Grade</b>	<b>HMA JMF Temperature</b>	<b>WMA JMF Temperature Range</b>
PG 64-22	300°F	225 - 275°F
PG 70-22	315°F	240 - 290°F
PG 76-22	335°F	260 - 310°F

- A.** The mix temperature, when checked in the truck at the roadway, shall be within plus 15° and minus 25° of the temperature specified on the JMF.

**Page 6-21, Subarticle 610-3(C) Job Mix Formula (JMF)**, lines 4-6, delete first sentence of the second paragraph. Line 7, in the second sentence of the second paragraph, replace “275°F” with “275°F or greater.”

**Page 6-22, Article 610-4 WEATHER, TEMPERATURE AND SEASONAL LIMITATIONS FOR PRODUCING AND PLACING ASPHALT MIXTURES**, lines 15-17, replace the second sentence of the first paragraph with the following:

Do not place asphalt material when the air or surface temperatures, measured at the location of the paving operation away from artificial heat, do not meet Table 610-5.

**Page 6-23, Article 610-4 WEATHER, TEMPERATURE AND SEASONAL LIMITATIONS FOR PRODUCING AND PLACING ASPHALT MIXTURES**, replace Table 610-5 with the following:

<b>TABLE 610-5 PLACEMENT TEMPERATURES FOR ASPHALT</b>	
<b>Asphalt Concrete Mix Type</b>	<b>Minimum Surface and Air Temperature</b>
B25.0B, C	35°F
I19.0B, C, D	35°F
SF9.5A, S9.5B	40°F <sup>A</sup>
S9.5C, S12.5C	45°F <sup>A</sup>
S9.5D, S12.5D	50°F

- A.** For the final layer of surface mixes containing recycled asphalt shingles (RAS), the minimum surface and air temperature shall be 50°F.

**Page 6-26, Article 610-7 HAULING OF ASPHALT MIXTURE**, lines 22-23, in the fourth sentence of the first paragraph replace “so as to overlap the top of the truck bed and” with “to”.

**Page 6-41, Subarticle 650-3(B) Mix Design Criteria**, replace Table 650-1 with the following:

<b>TABLE 650-1</b> <b>OGAFC GRADATION CRITERIA</b>			
<b>Grading Requirements</b>	<b>Total Percent Passing</b>		
<i>Sieve Size (mm)</i>	<i>Type FC-1</i>	<i>Type FC-1 Modified</i>	<i>Type FC-2 Modified</i>
19.0	-	-	100
12.5	100	100	<b>80</b> - 100
9.50	75 - 100	75 - 100	55 - <b>80</b>
4.75	25 - 45	25 - 45	15 - <b>30</b>
2.36	5 - 15	5 - 15	5 - <b>15</b>
0.075	1.0 - 3.0	1.0 - 3.0	2.0 - 4.0

**Page 6-50, Table 660-1 MATERIAL APPLICATION RATES AND TEMPERATURES**, lines 1-2, replace Note A in Table 660-1 with the following:

- A. Use No. 6M, No. 67, No. 5 and No. 78M aggregate for retreatment before an asphalt overlay on existing pavement based on the width of the cracks in the existing pavement. Choose No. 78M for sections of roadway where the average width of existing cracks is 1/4" or less in width, No. 67 for sections of roadway where the average width of existing cracks are 1/4" to 5/8" in width and choose No. 5 for sections of roadway where the existing crack widths are greater than 5/8".

**ASPHALT BINDER CONTENT OF ASPHALT PLANT MIXES:**

(11-21-00) (Rev. 7-17-12)

609

SP6 R15

The approximate asphalt binder content of the asphalt concrete plant mixtures used on this project will be as follows:

Asphalt Concrete Base Course	Type B 25.0__	4.4%
Asphalt Concrete Intermediate Course	Type I 19.0__	4.8%
Asphalt Concrete Surface Course	Type S 4.75A	6.8%
Asphalt Concrete Surface Course	Type SA-1	6.8%
Asphalt Concrete Surface Course	Type SF 9.5A	6.7%
Asphalt Concrete Surface Course	Type S 9.5__	6.0%
Asphalt Concrete Surface Course	Type S 12.5__	5.6%

The actual asphalt binder content will be established during construction by the Engineer within the limits established in the *2012 Standard Specifications*.

**ASPHALT CONCRETE SURFACE COURSE COMPACTION:**

(7-1-95) (Rev. 8-21-12)

SP6 R49R

Compact the asphalt surface course on this project in accordance with Subarticle 610-9 of the *2012 Standard Specifications* and the following provision:

Perform the first rolling with a steel wheel roller followed by rolling with a self-propelled pneumatic tired roller with the final rolling by a steel wheel roller.

**SELECT MATERIAL, CLASS III, TYPE 3:**

(1-17-12)

1016, 1044

SP10 R05

Revise the *2012 Standard Specifications* as follows:

**Page 10-39, Article 1016-3, CLASS III**, add the following after line 14:

**Type 3 Select Material**

Type 3 select material is a natural or manufactured fine aggregate material meeting the following gradation requirements and as described in Sections 1005 and 1006:

Percentage of Total by Weight Passing							
3/8"	#4	#8	#16	#30	#50	#100	#200
100	95-100	65-100	35-95	15-75	5-35	0-25	0-8

**Page 10-39, Article 1016-3, CLASS III, line 15**, replace “either type” with “Type 1, Type 2 or Type 3”.

**Page 10-62, Article 1044-1, line 36**, delete the sentence and replace with the following:

Subdrain fine aggregate shall meet Class III select material, Type 1 or Type 3.

**Page 10-63, Article 1044-2, line 2**, delete the sentence and replace with the following:

Subdrain coarse aggregate shall meet Class V select material.

**GUARDRAIL ANCHOR UNITS, TYPE 350:**

(4-20-04) (Rev. 8-16-11)

862

SP8 R65

**Description**

Furnish and install guardrail anchor units in accordance with the details in the plans, the applicable requirements of Section 862 of the *2012 Standard Specifications*, and at locations shown in the plans.

**Materials**

The Contractor may at his option, furnish any one of the guardrail anchor units or approved equal.

Guardrail anchor unit (ET-Plus) as manufactured by:

Trinity Industries, Inc.  
2525 N. Stemmons Freeway  
Dallas, Texas 75207  
Telephone: 800-644-7976

The guardrail anchor unit (SKT 350) as manufactured by:

Road Systems, Inc.  
3616 Old Howard County Airport  
Big Spring, Texas 79720  
Telephone: 915-263-2435

Prior to installation the Contractor shall submit to the Engineer:

- (A) FHWA acceptance letter for each guardrail anchor unit certifying it meets the requirements of NCHRP Report 350, Test Level 3, in accordance with Article 106-2 of the *2012 Standard Specifications*.
- (B) Certified working drawings and assembling instructions from the manufacturer for each guardrail anchor unit in accordance with Article 105-2 of the *2012 Standard Specifications*.

No modifications shall be made to the guardrail anchor unit without the express written permission from the manufacturer. Perform installation in accordance with the details in the plans, and details and assembling instructions furnished by the manufacturer.

**Construction Methods**

Guardrail end delineation is required on all approach and trailing end sections for both temporary and permanent installations. Guardrail end delineation consists of yellow reflective sheeting

applied to the entire end section of the guardrail in accordance with Article 1088-3 of the *2012 Standard Specifications* and is incidental to the cost of the guardrail anchor unit.

### **Measurement and Payment**

Measurement and payment will be made in accordance with Article 862-6 of the *2012 Standard Specifications*.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Guardrail Anchor Units, Type 350	Each



**ADJUSTMENT TO MANHOLES:**

(7-1-95) (Rev. 8-21-12)

858

SP8 R96R

The Contractor's attention is directed to Section 858-3 of the *2012 Standard Specifications*.

Make adjustments to manholes on this project by using rings or rapid set (grout, mortar, or concrete) as approved by the Engineer.

## **STREET SIGNS AND MARKERS AND ROUTE MARKERS:**

(7-1-95)

900

SP9 R02

Move any existing street signs, markers, and route markers out of the construction limits of the project and install the street signs and markers and route markers so that they will be visible to the traveling public if there is sufficient right of way for these signs and markers outside of the construction limits.

Near the completion of the project and when so directed by the Engineer, move the signs and markers and install them in their proper location in regard to the finished pavement of the project.

Stockpile any signs or markers that cannot be relocated due to lack of right of way, or any signs and markers that will no longer be applicable after the construction of the project, at locations directed by the Engineer for removal by others.

The Contractor shall be responsible to the owners for any damage to any street signs and markers or route markers during the above described operations.

No direct payment will be made for relocating, reinstalling, and/or stockpiling the street signs and markers and route markers as such work shall be considered incidental to other work being paid for by the various items in the contract.

**MATERIALS:**

(2-21-12) (Rev. 5-20-14)

1000, 1002, 1005, 1024, 1050, 1056, 1074, 1078, 1080, 1081, 1086, 1084, 1087, 1092

SP10 R01

Revise the *2012 Standard Specifications* as follows:

**Page 10-1, Article 1000-1, DESCRIPTION, lines 9-10,** replace the last sentence of the first paragraph with the following:

Type IL, IP, IS or IT blended cement may be used instead of Portland cement.

**Page 10-1, Article 1000-1, DESCRIPTION, line 14,** add the following:

Use materials which do not produce a mottled appearance through rusting or other staining of the finished concrete surface.

**Page 10-5, Table 1000-1, REQUIREMENTS FOR CONCRETE,** replace with the following:

TABLE 1000-1 REQUIREMENTS FOR CONCRETE											
Class of Concrete	Min. Comp. Strength at 28 days	Maximum Water-Cement Ratio				Consistency Max. Slump		Cement Content			
		Air-Entrained Concrete		Non Air-Entrained Concrete		Vibrated	Non-Vibrated	Vibrated		Non- Vibrated	
		Rounded Aggregate	Angular Aggregate	Rounded Aggregate	Angular Aggregate			Min.	Max.	Min.	Max.
<i>Units</i>	<i>psi</i>					<i>inch</i>	<i>inch</i>	<i>lb/cy</i>	<i>lb/cy</i>	<i>lb/cy</i>	<i>lb/cy</i>
AA	4,500	0.381	0.426	-	-	3.5	-	639	715	-	-
AA Slip Form	4,500	0.381	0.426	-	-	1.5	-	639	715	-	-
Drilled Pier	4,500	-	-	0.450	0.450	-	5-7 dry 7-9 wet	-	-	640	800
A	3,000	0.488	0.532	0.550	0.594	3.5	4	564	-	602	-
B	2,500	0.488	0.567	0.559	0.630	2.5	4	508	-	545	-
B Slip Formed	2,500	0.488	0.567	-	-	1.5	-	508	-	-	-
Sand Light-weight	4,500	-	0.420	-	-	4	-	715	-	-	-
Latex Modified	3,000 7 day	0.400	0.400	-	-	6	-	658	-	-	-
Flowable Fill excavatable	150 max. at 56 days	as needed	as needed	as needed	as needed	-	Flow-able	-	-	40	100
Flowable Fill non-excavatable	125	as needed	as needed	as needed	as needed	-	Flow-able	-	-	100	as needed
Pavement	4,500 design, field  650 flexural, design only	0.559	0.559	-	-	1.5 slip form  3.0 hand place	-	526	-	-	-
Precast	See Table 1077-1	as needed	as needed	-	-	6	as needed	as needed	as needed	as needed	as needed
Prestress	per contract	See Table 1078-1	See Table 1078-1	-	-	8	-	564	as needed	-	-

Page 10-1, Article 1000-2, MATERIALS, line 16; Page 10-8, Subarticle 1000-7(A), MATERIALS, line 8; and Page 10-18, Article 1002-2, MATERIALS, line 9, add the following to the table of item references:

**Item**  
Type IL Blended Cement

**Section**  
1024-1

Page 10-23, Table 1005-1, AGGREGATE GRADATION-COARSE AGGREGATE, replace with the following:

TABLE 1005-1 AGGREGATE GRADATION - COARSE AGGREGATE													
Percentage of Total by Weight Passing													
Std. Size #	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#10	#16	#40	#200	Remarks
4	100	90-100	20-55	0-15	-	0-5	-	-	-	-	-	A	Asphalt Plant Mix
467M	100	95-100	-	35-70	-	0-30	0-5	-	-	-	-	A	Asphalt Plant Mix
5	-	100	90-100	20-55	0-10	0-5	-	-	-	-	-	A	AST, Sediment Control Stone
57	-	100	95-100	-	25-60	-	0-10	0-5	-	-	-	A	AST, Str. Concrete, Shoulder Drain, Sediment Control Stone
57M	-	100	95-100	-	25-45	-	0-10	0-5	-	-	-	A	AST, Concrete Pavement
6M	-	-	100	90-100	20-55	0-20	0-8	-	-	-	-	A	AST
67	-	-	100	90-100	-	20-55	0-10	0-5	-	-	-	A	AST, Str. Concrete, Asphalt Plant Mix
78M	-	-	-	100	98-100	75-100	20-45	0-15	-	-	-	A	Asphalt Plant Mix, AST, Str. Conc. Weep Hole Drains
14M	-	-	-	-	-	100	35-70	5-20	-	0-8	-	A	Asphalt Plant Mix, AST, Weep Hole Drains, Str. Concrete
9	-	-	-	-	-	100	85-100	10-40	-	0-10	-	A	AST
ABC	-	100	75-97	-	55-80	-	35-55	-	25-45	-	14-30	4-12B	Aggregate Base Course, Aggregate Stabilization
ABC (M)	-	100	75-100	-	45-79	-	20-40	-	0-25	-	-	0-12B	Maintenance Stabilization
Light-weight C	-	-	-	-	100	80-100	5-40	0-20	-	0-10	-	0-2.5	AST

- A. See Subarticle 1005-4(A).  
 B. See Subarticle 1005-4(B).  
 C. For Lightweight Aggregate used in Structural Concrete, see Subarticle 1014-2(E)(6).

**Page 10-46, Article 1024-1, PORTLAND CEMENT, line 33,** add the following as the ninth paragraph:

Use Type IL blended cement that meets AASHTO M 240, except that the limestone content is limited to between 5 and 12% by weight and the constituents shall be interground. Class F fly ash can replace a portion of Type IL blended cement and shall be replaced as outlined in Subarticle 1000-4(I) for Portland cement. For mixes that contain cement with alkali content between 0.6% and 1.0% and for mixes that contain a reactive aggregate documented by the Department, use a pozzolan in the amount shown in Table 1024-1.

**Page 10-65, Article 1050-1, GENERAL, line 41,** replace the first sentence with the following:

All fencing material and accessories shall meet Section 106.

**Page 10-73, Article 1056-1 DESCRIPTION, lines 7-8,** delete the first sentence of the second paragraph and replace with the following:

Use geotextile fabrics that are on the NCDOT Approved Products List.

**Page 10-73, Article 1056-2 HANDLING AND STORING, line 17,** replace “mechanically stabilized earth (MSE) wall faces” with “temporary wall faces”.

**Page 10-74, TABLE 1056-1 GEOTEXTILE REQUIREMENTS**, replace table with the following:

<b>TABLE 1056-1 GEOTEXTILE REQUIREMENTS</b>						
<b>Property</b>	<b>Requirement (MARV<sup>A</sup>)</b>					<b>Test Method</b>
	<b>Type 1</b>	<b>Type 2</b>	<b>Type 3<sup>B</sup></b>	<b>Type 4</b>	<b>Type 5<sup>C</sup></b>	
<i>Typical Application</i>	<i>Shoulder Drains</i>	<i>Under Rip Rap</i>	<i>Temporary Silt Fence</i>	<i>Soil Stabilization</i>	<i>Temporary Walls</i>	
Elongation (MD & CD)	≥ 50%	≥ 50%	≤ 25%	< 50%	< 50%	ASTM D4632
Grab Strength (MD & CD)	Table 1 <sup>D</sup> , Class 3	Table 1 <sup>D</sup> , Class 1	100 lb	Table 1 <sup>D</sup> , Class 3	-	ASTM D4632
Tear Strength (MD & CD)			-		-	ASTM D4533
Puncture Strength			-		-	ASTM D6241
Ultimate Tensile Strength (MD & CD)	-	-	-	-	2,400 lb/ft (unless required otherwise in the contract)	ASTM D4595
Permittivity	Table 2 <sup>D</sup> , 15% to 50% <i>in Situ</i> Soil Passing No. 200 <sup>E</sup>		Table 7 <sup>D</sup>	Table 5 <sup>D</sup>	0.20 sec <sup>-1</sup>	ASTM D4491
Apparent Opening Size					No. 30 <sup>E</sup>	ASTM D4751
UV Stability (Retained Strength)					70%	ASTM D4355

- A. MARV does not apply to elongation
- B. Minimum roll width of 36" required
- C. Minimum roll width of 13 ft required
- D. AASHTO M 288
- E. US Sieve No. per AASHTO M 92

**Page 10-115, Subarticle 1074-7(B), Gray Iron Castings, lines 10-11**, replace with the first two sentences with the following:

Supply gray iron castings meeting all facets of AASHTO M 306 excluding proof load. Proof load testing will only be required for new casting designs during the design process, and conformance to M306 loading (40,000 lbs.) will be required only when noted on the design documents.

**Page 10-126, Table 1078-1, REQUIREMENTS FOR CONCRETE**, replace with the following:

<b>TABLE 1078-1 REQUIREMENTS FOR CONCRETE</b>		
<b>Property</b>	<b>28 Day Design Compressive Strength 6,000 psi or less</b>	<b>28 Day Design Compressive Strength greater than 6,000 psi</b>
Maximum Water/Cementitious Material Ratio	0.45	0.40
Maximum Slump without HRWR	3.5"	3.5"
Maximum Slump with HRWR	8"	8"
Air Content (upon discharge into forms)	5 + 2%	5 + 2%

**Page 10-151, Article 1080-4 Inspection and Sampling, lines 18-22**, replace (B), (C) and (D) with the following:

- (B) At least 3 panels prepared as specified in 5.5.10 of AASHTO M 300, Bullet Hole Immersion Test.
- (C) At least 3 panels of 4"x6"x1/4" for the Elcometer Adhesion Pull Off Test, ASTM D4541.
- (D) A certified test report from an approved independent testing laboratory for the Salt Fog Resistance Test, Cyclic Weathering Resistance Test, and Bullet Hole Immersion Test as specified in AASHTO M 300.
- (E) A certified test report from an approved independent testing laboratory that the product has been tested for slip coefficient and meets AASHTO M253, Class B.

**Page 10-161, Subarticle 1081-1(A) Classifications, lines 29-33**, delete first 3 sentences of the description for Type 2 and replace with the following:

**Type 2** - A low-modulus, general-purpose adhesive used in epoxy mortar repairs. It may be used to patch spalled, cracked or broken concrete where vibration, shock or expansion and contraction are expected.

**Page 10-162, Subarticle 1081-1(A) Classifications, lines 4-7**, delete the second and third sentences of the description for Type 3A. **Lines 16-22**, delete Types 6A, 6B and 6C.

**Page 10-162, Subarticle 1081-1(B) Requirements, lines 26-30**, replace the second paragraph with the following:

For epoxy resin systems used for embedding dowel bars, threaded rods, rebar, anchor bolts and other fixtures in hardened concrete, the manufacturer shall submit test results showing that the bonding system will obtain 125% of the specified required yield strength of the fixture. Furnish certification that, for the particular bolt grade, diameter and embedment depth required, the anchor system will not fail by adhesive failure and that there is no movement of the anchor bolt. For certification and anchorage, use 3,000 psi as the minimum Portland cement concrete compressive strength used in this test. Use adhesives that meet Section 1081.

List the properties of the adhesive on the container and include density, minimum and maximum temperature application, setting time, shelf life, pot life, shear strength and compressive strength.

**Page 10-163, Table 1081-1 Properties of Mixed Epoxy Resin Systems,** replace table with the following:

<b>Table 1081-1</b> <b>Properties of Mixed Epoxy Resin Systems</b>							
<b>Property</b>	<b>Type 1</b>	<b>Type 2</b>	<b>Type 3</b>	<b>Type 3A</b>	<b>Type 4A</b>	<b>Type 4B</b>	<b>Type 5</b>
Viscosity-Poises at 77°F ± 2°F	Gel	10-30	25-75	Gel	40-150	40-150	1-6
Spindle No.	-	3	4	--	4	4	2
Speed (RPM)	-	20	20	--	10	10	50
Pot Life (Minutes)	20-50	30-60	20-50	5-50	40-80	40-80	20-60
Minimum Tensile Strength at 7 days (psi)	1,500	2,000	4,000	4,000	1,500	1,500	4,000
Tensile Elongation at 7 days (%)	30 min.	30 min.	2-5	2-5	5-15	5-15	2-5
Min. Compressive Strength of 2" mortar cubes at 24 hours	3,000 (Neat)	4,000-	6,000-	6,000 (Neat)	3,000	3,000	6,000
Min. Compressive Strength of 2" mortar cubes at 7 days	5,000 (Neat)	-	-	-	-	5,000	-
Maximum Water Absorption (%)	1.5	1.0	1.0	1.5	1.0	1.0	1.0
Min. Bond Strength Slant Shear Test at 14 days (psi)	1,500	1,500	2,000	2,000	1,500	1,500	1,500

**Page 10-164, Subarticle 1081-1(E) Prequalification, lines 31-33,** replace the second sentence of the first paragraph with the following:

Manufacturers choosing to supply material for Department jobs must submit an application through the Value Management Unit with the following information for each type and brand name:



**Page 10-164, Subarticle 1081-1(E)(3), line 37**, replace this subarticle with the following:

(3) Type of the material in accordance with Articles 1081-1 and 1081-4,

**Page 10-165, Subarticle 1081-1(E)(6), line 1**, in the first sentence of the first paragraph replace “AASHTO M 237” with “the specifications”.

**Page 10-165, Subarticle 1081-1(E) Prequalification, line 9-10**, delete the second sentence of the last paragraph.

**Page 10-165, Subarticle 1081-1(F) Acceptance, line 14**, in the first sentence of the first paragraph replace “Type 1” with “Type 3”.

**Page 10-169, Subarticle 1081-3(G) Anchor Bolt Adhesives**, delete this subarticle.

**Page 10-170, Article 1081-3 Hot Bitumen, line 9**, add the following at the end of Section 1081:

#### **1081-4 EPOXY RESIN ADHESIVE FOR BONDING TRAFFIC MARKINGS**

##### **(A) General**

This section covers epoxy resin adhesive for bonding traffic markers to pavement surfaces.

##### **(B) Classification**

The types of epoxies and their uses are as shown below:

**Type I** – Rapid Setting, High Viscosity, Epoxy Adhesive. This type of adhesive provides rapid adherence to traffic markers to the surface of pavement.

**Type II** – Standard Setting, High Viscosity, Epoxy Adhesive. This type of adhesive is recommended for adherence of traffic markers to pavement surfaces when rapid set is not required.

**Type III** – Rapid Setting, Low Viscosity, Water Resistant, Epoxy Adhesive. This type of rapid setting adhesive, due to its low viscosity, is appropriate only for use with embedded traffic markers.

**Type IV** – Standard Set Epoxy for Blade Deflecting-Type Plowable Markers.

##### **(C) Requirements**

Epoxies shall conform to the requirements set forth in AASHTO M 237.

##### **(D) Prequalification**

Refer to Subarticle 1081-1(E).

##### **(E) Acceptance**

Refer to Subarticle 1081-1(F).

**Page 10-173, Article 1084-2 STEEL SHEET PILES, lines 37-38**, replace first paragraph with the following:

Steel sheet piles detailed for permanent applications shall be hot rolled and meet ASTM A572 or ASTM A690 unless otherwise required by the plans. Steel sheet piles shall be coated as required by the plans. Galvanized sheet piles shall be coated in accordance with Section 1076.

Metallized sheet piles shall be metallized in accordance to the Project Special Provision “Thermal Sprayed Coatings (Metallization)” with an 8 mil, 99.9% aluminum alloy coating and a 0.5 mil seal coating. Any portion of the metallized sheet piling encased in concrete shall receive a barrier coat. The barrier coat shall be an approved waterborne coating with a low-viscosity which readily absorbs into the pores of the aluminum thermal sprayed coating. The waterborne coating shall be applied at a spreading rate that results in a theoretical 1.5 mil dry film thickness. The manufacturer shall issue a letter of certification that the resin chemistry of the waterborne coating is compatible with the 99.9% aluminum thermal sprayed alloy and suitable for tidal water applications.

**Page 10-174, Subarticle 1086-1(B)(1) Epoxy, lines 18-24,** replace this subarticle with the following:

The epoxy shall meet Article 1081-4.

The 2 types of epoxy adhesive which may be used are Type I, Rapid Setting, and Type II, Standard Setting. Use Type II when the pavement temperature is above 60°F or per the manufacturer’s recommendations whichever is more stringent. Use Type I when the pavement temperature is between 50°F and 60°F or per the manufacturer’s recommendations whichever is more stringent. Epoxy adhesive Type I, Cold Set, may be used to attach temporary pavement markers to the pavement surface when the pavement temperature is between 32°F and 50°F or per the manufacturer’s recommendations whichever is more stringent.

**Page 10-175, Subarticle 1086-2(E) Epoxy Adhesives, line 27,** replace “Section 1081” with “Article 1081-4”.

**Page 10-177, Subarticle 1086-3(E) Epoxy Adhesives, line 22,** replace “Section 1081” with “Article 1081-4”.

**Page 10-179, Subarticle 1087-4(A) Composition, lines 39-41,** replace the third paragraph with the following:

All intermixed and drop-on glass beads shall not contain more than 75 ppm arsenic or 200 ppm lead.

**Page 10-180, Subarticle 1087-4(B) Physical Characteristics, line 8,** replace the second paragraph with the following:

All intermixed and drop-on glass beads shall comply with NCGS § 136-30.2 and 23 USC § 109(r).

**Page 10-181, Subarticle 1087-7(A) Intermixed and Drop-on Glass Beads, line 24,** add the following after the first paragraph:

Use X-ray Fluorescence for the normal sampling procedure for intermixed and drop-on beads, without crushing, to check for any levels of arsenic and lead. If any arsenic or lead is detected, the sample shall be crushed and repeat the test using X-ray Fluorescence. If the X-ray Fluorescence test shows more than a LOD of 5 ppm, test the beads using United States Environmental Protection Agency Method 6010B, 6010C or 3052 for no more than 75 ppm arsenic or 200 ppm lead.

Page 10-204, Subarticle 1092-2(A) Performance and Test Requirements, replace Table 1092-3 Minimum Coefficient of Retroreflection for NC Grade A with the following:

<b>TABLE 1092-3</b> <b>MINIMUM COEFFICIENT OF RETROREFLECTION FOR NC GRADE A</b> <b>(Candelas Per Lux Per Square Meter)</b>								
<b>Observation Angle, degrees</b>	<b>Entrance Angle, degrees</b>	<b>White</b>	<b>Yellow</b>	<b>Green</b>	<b>Red</b>	<b>Blue</b>	<b>Fluorescent Yellow Green</b>	<b>Fluorescent Yellow</b>
0.2	-4.0	525	395	52	95	30	420	315
0.2	30.0	215	162	22	43	10	170	130
0.5	-4.0	310	230	31	56	18	245	185
0.5	30.0	135	100	14	27	6	110	81
1.0	-4.0	<b>120</b>	60	8	16	3.6	64	48
1.0	30.0	45	34	4.5	9	2	36	27

**SHOULDER AND SLOPE BORROW:**

(3-19-13)

1019

SP10 R10

Use soil in accordance with Section 1019 of the *2012 Standard Specifications*. Use soil consisting of loose, friable, sandy material with a PI greater than 6 and less than 25 and a pH ranging from 5.5 to 7.0.

Soil with a pH ranging from 4.0 to 5.5 will be accepted without further testing if additional limestone is provided in accordance with the application rates shown in Table 1019-1A. Soil type is identified during the soil analysis. Soils with a pH above 7.0 require acidic amendments to be added. Submit proposed acidic amendments to the Engineer for review and approval. Soils with a pH below 4.0 or that do not meet the PI requirements shall not be used.

<b>TABLE 1019-1A ADDITIONAL LIMESTONE APPLICATION RATE TO RAISE pH</b>			
<b>pH TEST RESULT</b>	<b>Sandy Soils Additional Rate (lbs. / Acre)</b>	<b>Silt Loam Soils Additional Rate (lbs. / Acre)</b>	<b>Clay Loam Soils Additional Rate (lbs. / Acre)</b>
4.0 - 4.4	1,000	4,000	6,000
4.5 - 4.9	500	3,000	5,000
5.0 - 5.4	NA	2,000	4,000

Note: Limestone application rates shown in this table are in addition to the standard rate of 4000 lbs. / acre required for seeding and mulching.

No direct payment will be made for providing additional lime or acidic amendments for Ph adjustment.

**TEMPORARY TRAFFIC CONTROL DEVICES:**

(1-17-12)

1105

SP11 R05

Revise the *2012 Standard Specifications* as follows:

**Page 11-5, Article 1105-6 Measurement and Payment**, add the following paragraph after line 24:

Partial payments will be made on each payment estimate based on the following: 50% of the contract lump sum price bid will be paid on the first monthly estimate and the remaining 50% of the contract lump sum price bid will be paid on each subsequent estimate based on the percent of the project completed.

## **STABILIZATION REQUIREMENTS:**

(11-4-11)

S-3

Stabilization for this project shall comply with the time frame guidelines as specified by the NCG-010000 general construction permit effective August 3, 2011 issued by the North Carolina Department of Environment and Natural Resources Division of Water Quality. Temporary or permanent ground cover stabilization shall occur within 7 calendar days from the last land-disturbing activity, with the following exceptions in which temporary or permanent ground cover shall be provided in 14 calendar days from the last land-disturbing activity:

- Slopes between 2:1 and 3:1, with a slope length of 10 ft. or less
- Slopes 3:1 or flatter, with a slope of length of 50 ft. or less
- Slopes 4:1 or flatter

The stabilization timeframe for High Quality Water (HQW) Zones shall be 7 calendar days with no exceptions for slope grades or lengths. High Quality Water Zones (HQW) Zones are defined by North Carolina Administrative Code 15A NCAC 04A.0105 (25). Temporary and permanent ground cover stabilization shall be achieved in accordance with the provisions in this contract and as directed.

## **SEEDING AND MULCHING:**

(West)

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

### Shoulder and Median Areas

#### **August 1 - June 1**

20#	Kentucky Bluegrass
75#	Hard Fescue
25#	Rye Grain
500#	Fertilizer
4000#	Limestone

#### **May 1 - September 1**

20#	Kentucky Bluegrass
75#	Hard Fescue
10#	German or Browntop Millet
500#	Fertilizer
4000#	Limestone

### Areas Beyond the Mowing Pattern, Waste and Borrow Areas

#### **August 1 - June 1**

100#	Tall Fescue
15#	Kentucky Bluegrass
30#	Hard Fescue
25#	Rye Grain
500#	Fertilizer
4000#	Limestone

#### **May 1 - September 1**

100#	Tall Fescue
15#	Kentucky Bluegrass
30#	Hard Fescue
10#	German or Browntop Millet
500#	Fertilizer
4000#	Limestone

### Approved Tall Fescue Cultivars

2 <sup>nd</sup> Millennium	Duster	Magellan	Rendition
Avenger	Endeavor	Masterpiece	Scorpion
Barlexas	Escalade	Matador	Shelby
Barlexas II	Falcon II, III, IV & V	Matador GT	Signia
Barrera	Fidelity	Millennium	Silverstar
Barrington	Finesse II	Montauk	Southern Choice II
Biltmore	Firebird	Mustang 3	Stetson
Bingo	Focus	Olympic Gold	Tarheel
Bravo	Grande II	Padre	Titan Ltd
Cayenne	Greenkeeper	Paraiso	Titanium
Chapel Hill	Greystone	Picasso	Tomahawk
Chesapeake	Inferno	Piedmont	Tacer
Constitution	Justice	Pure Gold	Trooper
Chipper	Jaguar 3	Prospect	Turbo
Coronado	Kalahari	Quest	Ultimate
Coyote	Kentucky 31	Rebel Exeda	Watchdog
Davinci	Kitty Hawk	Rebel Sentry	Wolfpack
Dynasty	Kitty Hawk 2000	Regiment II	
Dominion	Lexington	Rembrandt	

### Approved Kentucky Bluegrass Cultivars

Alpine	Bariris	Envicta	Rugby
Apollo	Bedazzled	Impact	Rugby II
Arcadia	Bordeaux	Kenblue	Showcase
Arrow	Champagne	Midnight	Sonoma
Award	Chicago II	Midnight II	

### Approved Hard Fescue Cultivars

Chariot	Nordic	Rhino	Warwick
Firefly	Oxford	Scaldis II	
Heron	Reliant II	Spartan II	
Minotaur	Reliant IV	Stonehenge	

On cut and fill slopes 2:1 or steeper add 20# Sericea Lespedeza January 1 - December 31.

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

## **GEOTEXTILE SEPARATOR FABRIC**

### **Description**

The work of furnishing and installing separator fabric shall consist of performing all work and services necessary to complete construction in accordance with these Contract Documents.

Geotextile Separator Fabric shall be used to separate the soil subgrade from the aggregate base course.

### **SUBMITTAL**

The Contractor shall submit manufacturer's technical data and a sample of the fabric to be used for approval by the engineer prior to actual use.

### **MATERIAL**

**Geotextile Separator Fabric** - The separator fabric shall be a synthetic woven fabric, resistant to naturally occurring chemicals, alkalis, and acids, specified for use on roadway subgrade, having the following properties:

	<u>Typical</u>	<u>Test</u>
Grab Tensile Strength, lbs.	180	ASTM D4632-86
Elongation at Break, %	<50	ASTM D4632
Puncture, Strength, lbs.	67	ASTM D0751
Burst Strength, psi	300	ASTM D0751/3786
Trapezoid Tear, lbs.	67	ASTM D4533
Apparent Opening Size	0.60mm max	
Ultraviolet Stability (>500hr)	50%	

### **CONSTRUCTION METHODS**

The fabric shall be free of defects or flaws, which may significantly affect its physical properties. The fabric shall be overlapped a minimum of 24 inches where necessary. Aggregate shall be back dumped and spread in a uniform lift maintaining the design aggregate thickness at all times. Construction vehicles will not be allowed to traffic directly on the fabric.

The soil shall not be overstressed. Equipment shall be utilized in spreading the dumping that exerts only moderate pressures on the soil. Severe rutting at the time of placement shall be corrected by increasing the aggregate depth at no additional cost to the owner. Any ruts shall be filled with additional aggregate rather than from aggregate bladed from surrounding areas.



## MEASUREMENT AND PAYMENT

*Geotextile Separator Fabric* will be measured and paid in square yards. *Geotextile Separator Fabric* will be measured along subgrades as the square yards of exposed geotextiles before placing base course. No measurement will be made for overlapping geotextiles. The contract unit price for *Geotextile Separator Fabric* will be full compensation for providing, transporting and placing geotextiles. The contract unit price and payment shall constitute full compensation for furnishing all labor, material, equipment, and performing all operations in connection with placing the engineering fabric as shown on the contract plans or as directed by the Engineer.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Geotextile Separator Fabric	Square Yard

## **BOLLARDS**

The bollards shall be furnished and installed by the Contractor at the locations shown in the plans. Details are shown in the plans.

The bollards, concrete footings, and hardware shall be of the sizes and materials shown in the plans.

All bollards will be measured by counting the number of each type of bollard.

Payment will be made at the contract unit price per each for bollard. Such prices and payment will be considered full compensation for furnishing all materials, tools, labor, and equipment.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Hinged Bollard	Each
Permanent Wood Bollard	Each

## **RELOCATE TRASH CAN AND SIGN**

The contractor shall relocate the trash can and trail sign located near the beginning of the project north of Worth Street. The trash can and sign shall be preserved in their pre-construction state, removed from their current location, reset in a location approved by the City (2' minimum from trail edge), and continued to be preserved in their pre-construction condition throughout the close-out of construction. The contractor shall be liable for any damage to the trash can and sign during construction. It is advised the contractor document pictures of the trash can and sign prior to the start of construction.

This item will be measured on a lump sum basis.

Payment will be made at the contract unit price per lump sum for "Relocate Trash Can and Sign". Such prices and payment will be considered full compensation for furnishing all materials, tools, labor, and equipment.

Payment will be made under:

### **Pay Item**

Relocate Trash Can and Sign

### **Pay Unit**

Lump Sum

## **TRUNCATED DOME PAVERS**

The contractor shall install Truncated Dome Pavers on all greenway approaches to roadway crossings and terminations of greenways into parking lots. The truncated domes shall be contrasting in color, and shall be embedded in the pavement (asphalt or concrete).

This item will be measured on a per each basis. Each set of pavers will measure 2' long by 8' wide and be centered on the greenway no more than 1 foot from the edge of paving.

Payment will be made at the contract unit price per lump sum for "Truncated Dome Pavers". Such prices and payment will be considered full compensation for furnishing all materials, tools, labor, and equipment.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Truncated Dome Pavers, 2' x 8'	Each

## **PVC SCUPPER DRAIN**

The contractor shall install PVC scupper drains at all locations on the project where the greenway passes underneath existing bridge scuppers. A representative detail shown in the plans is a schematic view of a proposed scupper drain; the contractor shall be responsible for the actual design for each individual location where the drains are needed on the project, but should closely match the detail.

The size of the PVC pipe to be used will be shown in the plans. Larger segments of PVC may be needed at the scupper location in order to capture all drainage from the opening, but may be funneled down to accommodate the size of the rest of the system. The PVC drain pipe does not need to be sealed to the scupper opening, but should be located close enough to gather all drainage from the opening.

The drainage pipe should gather flow from all scuppers that are located within the project grading limits. The pipe will be attached to the bridge under the deck and along bridge bents and piers. The contractor should avoid attaching the pipe to the girders.

The PVC pipe shall be Schedule 40 and meet ASTM D1785 and D2665 and be ultraviolet (UV) resistant. The color of the pipe and fittings shall be white. Solvent cement the PVC pipe and fittings together. Connect the pipe with watertight connections that are suitable for gravity flow conditions. Obtain approval for all pipe fittings from the Engineer before delivery. Protect the open end of all outlet pipes with a galvanized rodent screen.

This item will be measured by total linear feet of pipe used to construct the scupper drain. Rip rap and filter fabric used at the drain outlet shall be paid under those bid items.

Payment will be made at the contract unit price per linear foot for "PVC Scupper Drain". Such prices and payment will be considered full compensation for furnishing all materials, tools, labor, and equipment needed to install a complete drainage system, including all fittings such as tees, wyes, rubber couplings, supports, and hardware used to attach the system to the bridge.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
PVC Scupper Drain	Linear Foot

## **CONCRETE SIDEWALK WITH FOOTING**

The contractor shall form, pour, and install concrete greenway (sidewalk) according to the details and typical sections in the plans. The concrete footing on either side of the greenway (or shoulder, if applicable) is subsidiary to the square yardage of the concrete sidewalk quantity.

All concrete greenway (sidewalk) and shoulder construction shall conform to Section 848 of the *NCDOT Standard Specifications*.

Payment will be made at the contract unit price per square yard for "Concrete Sidewalk with Footing". Such prices and payment will be considered full compensation for furnishing all materials, tools, labor, and equipment needed to install the sidewalk.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Concrete Sidewalk with Footing	Square Yard

## **REMOVE EXISTING BOLLARDS**

The contractor shall remove the two bollards near Worth Street once that portion of the greenway is permanently closed. The bollards shall be disposed of in a legal matter by the contractor.

Payment will be made at the contract unit price per each for "Remove Existing Bollards". Such prices and payment will be considered full compensation for furnishing all materials, tools, labor, and equipment needed to do the work.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Remove Existing Bollards	Each

## **STANDARD BIKE RACK**

The contractor shall install bike racks at the locations shown on the plans.

The bike racks shall be a prefabricated piece, manufactured by a company that specializes in the production of bicycle racks. Bike racks shall be constructed of a round tube. The Engineer shall approve the rack selected prior to installation. Dimension of the actual bike rack may not vary more than 10% of the dimensions shown in the detail in the plans. Install the bike rack to the concrete per the plan detail or manufacturer's recommendation.

The concrete surface the racks will be mounted on will be paid by the Concrete Sidewalk bid item.

Payment will be made at the contract unit price per each for "Standard Bike Rack". Such prices and payment will be considered full compensation for furnishing all materials, tools, labor, and equipment needed to procure and install the bike racks.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Standard Bike Rack	Each



## **FENCING**

### **DESCRIPTION**

Fencing shall be furnished and installed by the Contractor at the locations shown in the plans. Details for wooden split rail and white vinyl fence are shown in the plans.

### **MATERIALS**

Products from qualified manufacturers having a minimum of 5 years' experience manufacturing PVC fencing will be acceptable if they meet the following specifications for design, size, and fabrication. PVC Profiles, lineals & extrusions used as components must "meet or exceed" the minimum performance guidelines laid out in ASTM 964-02.

#### **WHITE VINYL FENCE:**

- A. Pickets, rails, and posts fabricated from PVC extrusion. The PVC extrusions shall comply with ASTM D 1784, Class 14344B and have the following characteristics:

Specific Gravity (+/- 0.02)	1.4
Using 0.125 specimen Izod impact ft. lbs./in. notch	23.0
Tensile strength, PSI	6,910
Tensile modulus, PSI	336,000
Flexural yield strength, PSI	10,104
Flexural modulus, PSI	385,000
DTUL at 264 PSI	67°C

- B. Rails: (Size) 1.5" x 5.5"  
Posts: (Size) 5" x 5"  
Color: White

#### **WOOD SPLIT RAIL FENCE:**

- A. Dimensions for fence shall match those in the plan detail. Fence must be three rail style.
- B. All wood materials shall be pressure treated wood. Materials shall be free from loose knots, cracks, and other imperfections.
- C. Post dimensions shall be 5" x 5".

#### **CONCRETE:**

- A. Minimum 28-day compressive strength of 3000 psi.

### **EXECUTION**

- A. Verify areas to receive fencing are completed to final grades and elevations.
- B. Ensure property lines and legal boundaries of work are clearly established.

## INSTALLATION

- A. Follow individual installation instructions for the appropriate style in setting posts.
- B. White vinyl corner and edge posts on all fences shall be filled with concrete for additional strength.
- C. Place assembled fence sections into position and slide rails into posts. The rails are secured into posts by tabs which are notched into the rails and catch on the inside wall of the post.
- D. Check each post for vertical and top alignment, and maintain in position during placement and finishing operation.
- E. Station ranges shown in plans are minimum range that fence must span. Fence installation shall extend beyond limits shown in order to maintain equal spans between fence posts. Fence spans shall maintain distances shown in the plan details. Payment will not be made for extra fence required beyond station limits shown in plans.

## ACCESSORIES

- A. Install post caps and other accessories to complete fence.

## CLEANING

- A. Clean up debris and unused material and remove from site.

## MEASUREMENT AND PAYMENT

"Fence" will be measured along the top rail of the completed installation.

Payment will be made at the contract unit price per linear foot "Fence", which price and payment will be considered full compensation for furnishing all materials, tools, labor, and equipment.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
White Vinyl Fence	Linear Foot
Split Rail Fence	Linear Foot

## **INSTALL NEW SANITARY SEWER MANHOLE RIM CASTING**

The contractor shall install new sanitary sewer manhole rims at the locations indicated in the plans to replace current worn rims. The Contractor shall submit Shop Drawings to the City for the frames and manholes to be furnished. The City shall review the submittal and approve its conformance with the Specifications before the manhole materials are ordered.

All materials specified shall be produced in a plant of recognized reputation and regularly engaged in the production of materials conforming to the specified standards. All materials shall be new and both workmanship and materials shall be of the very best quality, entirely suitable for the service to which the units are to be subjected. All material of the same kind supplied for the work shall be produced by the same manufacturer.

Manhole frames and covers shall be a watertight lid with bolt down cover, similar to US Foundry 669KL. Minimum weight for the frame and cover shall be 190 lbs. and 120 lbs. respectively. Lids shall be non-perforated with "SANITARY SEWER" cast into the cover.

Manhole frames and covers shall be located in such a manner that there is ready access to the manhole steps. Frames shall be well bedded in mortar, and sealed to the existing concrete manhole. All cast iron manhole frames and covers shall be given one shop coat of asphaltic or coal tar varnish, unless otherwise specified.

If it is determined by the City that manholes indicated for adjustment only in the plans are needed to be replaced, they shall be replaced per this specification.

Refer to NCDOT Standard Specification 858 for adjustments to be made to the manholes. The new rim shall be set at the elevation shown in the plans. If no elevation is shown, the rim may be set at the existing rim elevation. All rims installed inside the pavement limits of the greenway shall be flush with the final grade of the pavement.

Payment will be made at the contract unit price per each for "Install New Sanitary Sewer Manhole Rim Casting". Such prices and payment will be considered full compensation for furnishing all materials, tools, labor, and equipment for adjusting the manhole and installing the frame and rim.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Install New Sanitary Sewer Manhole Rim Casting	Each

## **PAVEMENT MARKINGS**

All pavement markings shall be installed per *NCDOT Standard Specification 1205*.

Solid pavement markings, as well as the “SLOW” marking shall be installed per the details at the locations shown in the plans and as directed in the field.

Dashed centerline markings shall be installed on all other greenway locations as directed by the City. The dashed centerline markings will only be installed if the alternate is accepted by the City.

Measurement and payment will be made per Section 1205-10 in the *NCDOT Standard Specifications*.

## **DECORATIVE COLUMNS AND GRANITE MILE MARKERS**

The contractor shall install decorative columns and granite mile markers at the locations shown in the plans.

The granite to be used for these items shall be sourced from Surry County. The color and shade of the proposed granite shall be similar to the granite that is used for the mile markers on the current Ararat River Greenway between Riverside Park and Tharrington Park. A 3"x 3"x 1" sample of the granite to be used shall be provided to the City of Mount Airy Parks and Recreation Department for approval prior to the procurement of the granite.

The Granite Mile Markers shall be of similar shape and size of the current Ararat River Greenway markers. Text font, size, engraving depth, and color shall also match the current markers. The text used shall be engraved on both sides, and shall be identical. The finish of the sides of the markers shall match the existing markers. The distances shall be in ¼ mile increments. The mile distance to be labeled will be indicated on the plans, with a specific station and offset from the greenway alignment.

Construction means and methods for the decorative columns are covered under sections 830 and 834 of the NCDOT Standard Specifications.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Granite Mile Markers	Each
Decorative Bridge Column	Each

## **SP-1 TEMPORARY SILT FENCE**

### **SP-1-1 DESCRIPTION**

Furnish material, construct, maintain and remove temporary silt fence in locations shown in the plans or in locations that require surface drainage to be filtered in accordance with NCDOT Section 1605.

### **SP-1-2 MATERIALS**

Refer to Division 10.

<b>Item</b>	<b>Section</b>
Geotextile, Type 3	1056

#### **(A) Posts**

Provide steel posts with at least 5 ft long, 1 3/8" wide measured parallel to the fence and 1.25 lb/ft in weight per length. Equip with an anchor plate with an area of at least 14.0 sq.in. Ensure a means of retaining fencing material in the desired position without displacement.

#### **(B) Woven Wire Fence**

Provide woven wire fence at least 32" high with 5 horizontal wires, vertical wires spaced 12" apart, 10 gauge top and bottom wires and 12 1/2 gauge for all other wires.

#### **(C) Attachment Device**

Provide No. 9 staple with at least 1 1/2" length or other approved attachment device.

### **SP-1-3 CONSTRUCTION METHODS**

Install in locations as shown in the plans or as directed.

Install wire and geotextile as shown in *Roadway Standard Drawings*.

Geotextile may be used without the woven wire fence backing under the following conditions:

(A) The Engineer will approve the geotextile.

(B) Incline post spacing toward the runoff source, at an angle of not more than 20° from vertical.

(1) Attach geotextile to the post with wire or other acceptable methods.

(2) Overlap geotextile at least 18" at splice joints.

(3) Install geotextile that is free of defects, rips, holes, flaws, deterioration or damage.

### **SP-1-4 MAINTENANCE AND REMOVAL**

Maintain the silt fence until the project is accepted or until the fence is removed. Remove and replace deteriorated or ineffective geotextile. Remove and dispose of silt accumulations in accordance with Section 1630 when necessary or as directed.

Leave silt fence in place until site stabilization and remove at project completion. Removed silt fence becomes the property of the Contractor. Dress and seed and mulch all areas where silt fence is removed in accordance with Section 1660.

### **SP-1-5 MEASUREMENT AND PAYMENT**

*Temporary Silt Fence* will be measured and paid in linear feet, accepted in place, along the ground line of the fence. This will include *Silt Excavation* in accordance with Section 1630. Such price and payment shall be full compensation for all work covered by this section including all materials, labor, equipment, and maintenance associated with the installation and removal of *Temporary Silt Fence*.

*Seeding and Mulching* will be measured and paid in accordance with Section 1660.

Article 104-5, pertaining to revised contract prices, will not apply to this item. No revision in the contract unit price will be allowed because of any overrun or underrun.

Payment will be made under:

**Pay Item**

Temporary Silt Fence

**Pay Unit**

Linear Foot

## **SP-2 SPECIAL SEDIMENT CONTROL FENCE**

### **SP-2-1 DESCRIPTION**

Furnish materials, construct, maintain and remove special sediment control fence in accordance with NCDOT Section 1606. Place special sediment control fence as shown in the plans or as directed.

### **SP-2-2 MATERIALS**

Refer to Division 10.

<b>Item</b>	<b>Section</b>
Sediment Control Stone, Standard Size No. 5 or 57	1005

#### **(A) Posts**

Provide steel posts in accordance with Subarticle 1605-2(A).

#### **(B) 1/4" Hardware Cloth**

Provide hardware cloth with 1/4" openings constructed from 24 gauge wire.

#### **(C) Attachment Device**

Provide No. 9 staple with at least 1 1/2" length or other approved attachment device.

### **SP-2-3 CONSTRUCTION METHODS**

Install hardware cloth and sediment control stone in accordance with *Roadway Standard Drawings* No. 1606.01. Attach hardware cloth to post with wire staple or other acceptable methods.

Maintain the special sediment control fence until the project is accepted or until the fence is removed. Remove and dispose of silt accumulations at the fence when so directed in accordance with Section 1630.

### **SP-2-4 MEASUREMENT AND PAYMENT**

*Special Sediment Control Fence* will be measured and paid in linear feet, accepted in place, along the ground line of the fence. Such price and payment shall be full compensation for all work covered by this section including all materials, labor, equipment, and maintenance associated with the installation and removal of *Special Sediment Control Fence*.

<b>Pay Item</b>	<b>Pay Unit</b>
Special Sediment Control Fence	Linear Foot



## **SP-3 GRAVEL CONSTRUCTION ENTRANCE**

### **SP-3-1 DESCRIPTION**

Furnish, install, maintain and remove all material required for the construction of a gravel construction entrance in accordance with NCDOT Section 1607.

### **SP-3-2 MATERIALS**

Refer to Division 10.

<b>Item</b>	<b>Section</b>
Stone for Erosion Control, Class A	1042
Geotextile for Drainage, Type 2	1056

### **SP-3-3 CONSTRUCTION METHODS**

Install a gravel construction entrance in accordance with *Roadway Standard Drawings* No. 1607.01 and at locations as directed. Install gravel construction entrances in a way to prevent vehicles from bypassing the construction entrance when leaving the project site.

### **SP-3-4 MEASUREMENT AND PAYMENT**

*Gravel Construction Entrances* will be measured and paid for per each, accepted in place. Such price and payment shall be full compensation for all work covered by this section including all materials, labor, equipment, and maintenance associated with the installation and removal of *Gravel Construction Entrance*.

<b>Pay Item</b>	<b>Pay Unit</b>
Gravel Construction Entrance	Each

## SP-4 STONE FOR EROSION CONTROL

### SP-4-1 DESCRIPTION

Furnish, stockpile if directed, place and maintain an approved geotextile fabric and stone for construction of the Special V Ditch and for Outlet Stabilization structures used for erosion control in accordance with NCDOT Section 1610. The work includes, but is not limited to, furnishing, weighing, stockpiling, re-handling, placing and maintaining fabric and stone; and disposal of any stone not incorporated into the project when necessary.

### SP-4-2 MATERIALS

Refer to Division 10.

Item	Section
Stone for Erosion Control, Class B, or Class 1	1042-1
Geotextile for Drainage, Type 2	1056

### SP-4-3 CONSTRUCTION METHODS

Place stone, in locations and to the thickness, widths and lengths as shown in the plans or as directed. Construct erosion control devices in accordance with the plans neatly and uniformly with an even surface and meeting the plans.

### SP-4-4 MEASUREMENT AND PAYMENT

*Stone For Erosion Control, Class\_\_* will be measured and paid in tons of each class of stone incorporated into the work, or has been delivered to and stockpiled on the project as directed. Stone placed in the stockpile will not be measured a second time. Measure stone by weighing in trucks on certified platform scales or other certified weighing devices. Geotextile fabric will be considered incidental to *Stone For Erosion Control*.

Payment will be made under:

Pay Item	Pay Unit
Stone For Erosion Control, Class__	Ton

## SP-5 TEMPORARY SEEDING

### SP-5-1 DESCRIPTION

Seed and mulch selected areas in advance of the permanent seeding and mulching operations to minimize erosion of graded areas during construction operations in accordance to NCDOT Section 1620. The work includes preparing seedbeds; furnishing, placing and covering fertilizer and seed; furnishing and placing mulch; and other operations necessary for seeding the required areas.

Perform temporary seeding promptly at the locations and under any of the following conditions when directed:

(A) When it is impossible or impractical to bring an area to the final line, grade and finish so that permanent seeding and mulching operations can be performed without subsequent serious disturbance by additional grading;

(B) When erosion occurs or is considered to be potentially substantial on areas of graded roadbed where construction operations are temporarily suspended or where the grading of the roadbed has been completed substantially in advance of the paving construction;

(C) During seasons of the year when permanent seeding and mulching is prohibited by the contract;

(D) When an immediate cover would be desirable to minimize erosion, siltation or pollution on any area.

The actual conditions that occur during the construction of the project will determine the quantity of seed or fertilizer to be used. The quantity of seed or fertilizer may be increased, decreased or eliminated entirely as directed. Such variations in quantity will not be considered as alterations in the details of construction or a change in the character of the work.

### SP-5-2 MATERIALS

Refer to Division 10.

Item	Section
Fertilizer	1060-2
Mulch for erosion control	1060-5
Seed	1060-4

See the contract for analysis of fertilizer.

Apply the following seed at the listed rates:

September – March	April – August
<i>Secale cereal</i> (Cereal Rye)	<i>Panicum ramosum</i> (Browntop Millet)
130 pounds per acre	40 pounds per acre

### SP-5-3 CONSTRUCTION METHODS

#### (A) Seedbed Preparation

Scarify areas to be seeded to a depth of not less than 5" unless directed otherwise. The soil conditions and topography will determine the required depth of the seedbed.

Prepare the surface to be seeded with adequate furrows, ridges, terraces, trenches or other irregularities in which seeding materials can lodge with reasonable assurance that the materials will not be easily displaced by wind, rain or surface runoff.

**(B) Applying and Covering Fertilizer and Seed**

The analysis and rate of application of fertilizer shall be as stated in the contract.

Apply no fertilizer or seed when the Engineer determines that conditions are unfavorable for such operations.

Distribute the fertilizer or seed uniformly over the seedbed at the required rates of applications.

Cover fertilizer and seed unless otherwise directed. If covering is required, provide it to the depth acceptable to the Engineer for the prevention of displacement by wind, rain or surface runoff.

Mulch all areas temporarily seeded, in accordance with Section 1615, unless otherwise indicated in the contract or as directed.

Article 1660-5 will be applicable to the approval of equipment and the protection of traffic, structures, guardrails, traffic control devices and other appurtenances.

**(C) Mowing and Repair of Temporary Seeding**

Maintain areas where temporary seeding is performed in a satisfactory condition, including mowing at the locations and times as directed.

Repair areas of temporary seeding which have been damaged or have failed. Repair includes reshaping or the placing of additional earth material and repeating the seeding process.

**SP-5-4 MEASUREMENT AND PAYMENT**

*Temporary Mulching* will be measured and paid in accordance with Section 1615.

*Temporary Seeding* will be measured and paid in acres, measured along the surface of the ground over which temporary seed has been placed as directed and accepted. Payment for fertilizer will be included in the payment for Temporary Seeding. Such price and payment shall be full compensation for all work covered by this section including all materials, labor, equipment, and maintenance associated with providing a dense stand of temporary vegetation.

Payment will be made under:

**Pay Item**

Temporary Seeding

**Pay Unit**

Acres

## **SP-6 TEMPORARY ROCK DAM**

### **SP-6-1 DESCRIPTION**

Construct, maintain and remove devices placed in ditches, diversions or swales to reduce water velocity and contain sediment in accordance with NCDOT Section 1633.

The actual conditions which occur during the construction of the project will determine the quantity of temporary rock silt checks constructed. The quantity of silt check dams may be increased, decreased or eliminated entirely as directed. Such variations in quantity will not be considered as alterations in the details of construction or a change in the character of the work.

### **SP-6-2 MATERIALS**

Refer to Division 10.

<b>Item</b>	<b>Section</b>
Sediment Control Stone, Standard Size No. 5 or 57	1005
Stone for Erosion Control, Class 1	1042-1

### **SP-6-3 CONSTRUCTION METHODS**

Place structural stone in the channel, ditch, diversion or swale with approximately 2:1 side slopes. Place sediment control stone, approximately 12" thick on the upstream side.

### **SP-6-4 MAINTENANCE AND REMOVAL**

Maintain the temporary rock dams, remove and dispose of silt accumulations at the silt checks when so directed in accordance with Section 1630.

Remove temporary rock dams as the project nears completion. The actual time of removal will be as directed. After removal of rock dams, dress the area to blend with existing contours and seed and mulch the area in accordance with Section 1660.

### **SP-6-5 MEASUREMENT AND PAYMENT**

*Temporary Rock Dams* will be measured and paid for per each, accepted in place. Such price and payment shall be full compensation for all work covered by this section including all materials, labor, equipment, and maintenance associated with the installation and removal of *Temporary Rock Dams*.

<b>Pay Item</b>	<b>Pay Unit</b>
Temporary Rock Dam	Each

**SP-7**

## SP-7-1 DESCRIPTION

Construct, maintain and remove devices placed around outside perimeters of pipe structures and catch basins to reduce water velocity and trap sediment in accordance with NCDOT Section 1635.

The conditions which occur during the construction of the project will determine the quantity of temporary rock pipe inlet sediment traps to be constructed. The quantity of inlet sediment traps may be increased, decreased or eliminated entirely as directed. Such variations in quantity will not be considered as alterations in the details of construction or a change in the character of the work.

## SP-7-2 MATERIALS

Refer to Division 10.

Item	Section
Sediment Control Stone, Standard Size No. 5 or 57	1005
Stone for Erosion Control, Class 1	1042-1

### SP-7-3 CONSTRUCTION METHODS

Construct rock pipe inlet sediment trap Type A devices at locations shown in the plans or as directed.

## SP-7-4 MAINTENANCE AND REMOVAL

Maintain the rock pipe inlet sediment traps, remove and dispose of silt accumulations at the pipe inlet sediment traps as directed in accordance with Section 1630.

Remove rock pipe inlet sediment traps as the project nears completion, or as directed. Prepare a seed bed to blend with existing contours and seed and mulch in accordance with Section 1660.

## SP-7-5 MEASUREMENT AND PAYMENT

*Rock Pipe Inlet Protection* will be measured and paid for per each, accepted in place. Such price and payment shall be full compensation for all work covered by this section including all materials, labor, equipment, and maintenance associated with the installation and removal of *Rock Pipe Inlet Protection*.

Pay Item	Pay Unit
Rock Pipe Inlet Protection	Each

## **SP-8 TEMPORARY ORANGE SAFETY FENCE**

### **SP-8-1 DESCRIPTION**

Construct, maintain and remove temporary orange safety fences placed around outside perimeters of existing wetlands and as directed by the Engineer in the locations shown on the plans.

### **SP-8-2 MATERIALS**

Post: Steel t-shaped post with a minimum mass of 1.33 pounds per linear foot shall be used. Post shall be a minimum of 5 feet long.

Plastic Zip Ties: Plastic zip ties with a minimum tensile strength of 50 pounds shall be used.

Fence: International orange, Occupational Health and Safety (OSHA) approved, high density polyethylene or polypropylene mesh fence shall be used. Fencing shall be 4 feet in height with a roll weight of 20 pounds per 50 foot length.

### **SP-8-3 CONSTRUCTION METHODS**

Construct temporary orange safety fences in the locations shown in the plans or as directed.

### **SP-8-4 MAINTENANCE AND REMOVAL**

Maintain the safety fences throughout the life of the project.

Remove safety fence as the project nears completion, or as directed.

### **SP-8-5 MEASUREMENT AND PAYMENT**

*Temporary Orange Safety Fence* will be measured and paid in linear feet, accepted in place, along the ground line of the fence. Such price and payment shall be full compensation for all work covered by this section including all materials, labor, equipment, and maintenance associated with the installation and removal of *Temporary Orange Safety Fence*.

#### **Pay Item**

Temporary Orange Safety Fence

#### **Pay Unit**

LF

## **#57 STONE**

**General:** The Contractor shall provide and place #57 Stone where show on the plans or in areas as needed during construction as directed by the Engineer.

Stone shall be provided and installed in accordance with;  
Section 1005 - NCDOT - Standard Specifications For Roads and Structures

**Method of Measurement and Basis of Payment:** The work of furnishing and installing the #57 Stone as approved by the Engineer, when completed and accepted, will be paid for at the unit price per ton for "#57 Stone". Such price and payment will be full compensation for all work covered by this special provision; including but not limited to furnishing all labor and materials. (see Section 1005 -Standard Specification)

Payment will be made under:

**Pay Item**  
#57 Stone

**Pay Unit**  
TON



**1.0 DESCRIPTION**

Use this Special Provision as a guide to develop temporary works submittals required by the Standard Specifications or other provisions; no additional submittals are required herein. Such temporary works include, but are not limited to, falsework and formwork.

Falsework is any temporary construction used to support the permanent structure until it becomes self-supporting. Formwork is the temporary structure or mold used to retain plastic or fluid concrete in its designated shape until it hardens. Access scaffolding is a temporary structure that functions as a work platform that supports construction personnel, materials, and tools, but is not intended to support the structure. Scaffolding systems that are used to temporarily support permanent structures (as opposed to functioning as work platforms) are considered to be falsework under the definitions given. Shoring is a component of falsework such as horizontal, vertical, or inclined support members. Where the term “temporary works” is used, it includes all of the temporary facilities used in bridge construction that do not become part of the permanent structure.

Design and construct safe and adequate temporary works that will support all loads imposed and provide the necessary rigidity to achieve the lines and grades shown on the plans in the final structure.

**2.0 MATERIALS**

Select materials suitable for temporary works; however, select materials that also ensure the safety and quality required by the design assumptions. The Engineer has authority to reject material on the basis of its condition, inappropriate use, safety, or nonconformance with the plans. Clearly identify allowable loads or stresses for all materials or manufactured devices on the plans. Revise the plan and notify the Engineer if any change to materials or material strengths is required.

**3.0 DESIGN REQUIREMENTS****A. Working Drawings**

Provide working drawings for items as specified in the contract, or as required by the Engineer, with design calculations and supporting data in sufficient detail to permit a structural and safety review of the proposed design of the temporary work.

On the drawings, show all information necessary to allow the design of any component to be checked independently as determined by the Engineer.

When concrete placement is involved, include data such as the drawings of proposed sequence, rate of placement, direction of placement, and location of all construction joints. Submit the number of copies as called for by the contract.

When required, have the drawings and calculations prepared under the guidance of, and sealed by, a North Carolina Registered Professional Engineer who is knowledgeable in temporary works design.

If requested by the Engineer, submit with the working drawings manufacturer's catalog data listing the weight of all construction equipment that will be supported on the temporary work. Show anticipated total settlements and/or deflections of falsework and forms on the working drawings. Include falsework footing settlements, joint take-up, and deflection of beams or girders.

As an option for the Contractor, overhang falsework hangers may be uniformly spaced, at a maximum of 36 inches, provided the following conditions are met:

Member Type (PCG)	Member Depth, (inches)	Max. Overhang Width, (inches)	Max. Slab Edge Thickness, (inches)	Max. Scream Wheel Weight, (lbs.)	Bracket Min. Vertical Leg Extension, (inches)
II	36	39	14	2000	26
III	45	42	14	2000	35
IV	54	45	14	2000	44
MBT	63	51	12	2000	50
MBT	72	55	12	1700	48

Overhang width is measured from the centerline of the girder to the edge of the deck slab.

For Type II, III & IV prestressed concrete girders (PCG), 45-degree cast-in-place half hangers and rods must have a minimum safe working load of 6,000 lbs.

For MBT prestressed concrete girders, 45-degree angle holes for falsework hanger rods shall be cast through the girder top flange and located, measuring along the top of the member, 1'-2 1/2" from the edge of the top flange. Hanger hardware and rods must have a minimum safe working load of 6,000 lbs.

The overhang bracket provided for the diagonal leg shall have a minimum safe working load of 3,750 lbs. The vertical leg of the bracket shall extend to the point that the heel bears on the girder bottom flange, no closer than 4 inches from the bottom of the member. However, for 72-inch members, the heel of the bracket shall bear on the web, near the bottom flange transition.

Provide adequate overhang falsework and determine the appropriate adjustments for deck geometry, equipment, casting procedures and casting conditions.

If the optional overhang falsework spacing is used, indicate this on the falsework submittal and advise the girder producer of the proposed details. Failure to notify the Engineer of hanger type and hanger spacing on prestressed concrete girder casting drawings may delay the approval of those drawings.

Falsework hangers that support concentrated loads and are installed at the edge of thin top flange concrete girders (such as bulb tee girders) shall be spaced so as not to exceed 75% of the manufacturer's stated safe working load. Use of dual leg hangers (such as Meadow Burke HF-42 and HF-43) are not allowed on concrete girders with thin top flanges. Design the falsework and forms supporting deck slabs and overhangs on girder bridges so that there will be no differential settlement between the girders and the deck forms during placement of deck concrete.

When staged construction of the bridge deck is required, detail falsework and forms for screed and fluid concrete loads to be independent of any previous deck pour components when the mid-span girder deflection due to deck weight is greater than  $\frac{3}{4}$ ".

Note on the working drawings any anchorages, connectors, inserts, steel sleeves or other such devices used as part of the falsework or formwork that remains in the permanent structure. If the plan notes indicate that the structure contains the necessary corrosion protection required for a Corrosive Site, epoxy coat, galvanize or metalize these devices. Electroplating will not be allowed. Any coating required by the Engineer will be considered incidental to the various pay items requiring temporary works.

Design falsework and formwork requiring submittals in accordance with the 1995 AASHTO *Guide Design Specifications for Bridge Temporary Works* except as noted herein.

## 1. Wind Loads

Table 2.2 of Article 2.2.5.1 is modified to include wind velocities up to 110 mph. In addition, Table 2.2A is included to provide the maximum wind speeds by county in North Carolina.

**Table 2.2 - Wind Pressure Values**

Height Zone feet above ground	Pressure, lb/ft <sup>2</sup> for Indicated Wind Velocity, mph				
	70	80	90	100	110
0 to 30	15	20	25	30	35
30 to 50	20	25	30	35	40
50 to 100	25	30	35	40	45
over 100	30	35	40	45	50

## 2. Time of Removal

The following requirements replace those of Article 3.4.8.2.

Do not remove forms until the concrete has attained strengths required in Article 420-16 of the Standard Specifications and these Special Provisions.

Do not remove forms until the concrete has sufficient strength to prevent damage to the surface.

**Table 2.2A - Steady State Maximum Wind Speeds by Counties in North Carolina**

COUNTY	25 YR (mph)	COUNTY	25 YR (mph)	COUNTY	25 YR (mph)
Alamance	70	Franklin	70	Pamlico	100
Alexander	70	Gaston	70	Pasquotank	100
Alleghany	70	Gates	90	Pender	100
Anson	70	Graham	80	Perquimans	100
Ashe	70	Granville	70	Person	70
Avery	70	Greene	80	Pitt	90
Beaufort	100	Guilford	70	Polk	80
Bertie	90	Halifax	80	Randolph	70
Bladen	90	Harnett	70	Richmond	70
Brunswick	100	Haywood	80	Robeson	80
Buncombe	80	Henderson	80	Rockingham	70
Burke	70	Hertford	90	Rowan	70
Cabarrus	70	Hoke	70	Rutherford	70
Caldwell	70	Hyde	110	Sampson	90
Camden	100	Iredell	70	Scotland	70
Carteret	110	Jackson	80	Stanley	70
Caswell	70	Johnston	80	Stokes	70
Catawba	70	Jones	100	Surry	70
Cherokee	80	Lee	70	Swain	80
Chatham	70	Lenoir	90	Transylvania	80
Chowan	90	Lincoln	70	Tyrell	100
Clay	80	Macon	80	Union	70
Cleveland	70	Madison	80	Vance	70
Columbus	90	Martin	90	MECKLEN BURG	70
Craven	100	McDowell	70	Warren	70
Cumberland	80	Mecklenburg	70	Washington	100
Currituck	100	Mitchell	70	Watauga	70
Dare	110	Montgomery	70	Wayne	80
Davidson	70	Moore	70	Wilkes	70
Davie	70	Nash	80	Wilson	80
Duplin	90	New Hanover	100	Yadkin	70
Durham	70	Northampton	80	Yancey	70
Edgecombe	80	Onslow	100		
Forsyth	70	Orange	70		

## B. Review and Approval

The Engineer is responsible for the review and approval of temporary works' drawings.

Submit the working drawings sufficiently in advance of proposed use to allow for their review, revision (if needed), and approval without delay to the work.

The time period for review of the working drawings does not begin until complete drawings and design calculations, when required, are received by the Engineer.

Do not start construction of any temporary work for which working drawings are required until the drawings have been approved. Such approval does not relieve the Contractor of the responsibility for the accuracy and adequacy of the working drawings.

## 4.0 CONSTRUCTION REQUIREMENTS

All requirements of Section 420 of the Standard Specifications apply.

Construct temporary works in conformance with the approved working drawings. Ensure that the quality of materials and workmanship employed is consistent with that assumed in the design of the temporary works. Do not weld falsework members to any portion of the permanent structure unless approved. Show any welding to the permanent structure on the approved construction drawings.

Provide tell-tales attached to the forms and extending to the ground, or other means, for accurate measurement of falsework settlement. Make sure that the anticipated compressive settlement and/or deflection of falsework does not exceed 1 inch. For cast-in-place concrete structures, make sure that the calculated deflection of falsework flexural members does not exceed 1/240 of their span regardless of whether or not the deflection is compensated by camber strips.

### A. Maintenance and Inspection

Inspect and maintain the temporary work in an acceptable condition throughout the period of its use. Certify that the manufactured devices have been maintained in a condition to allow them to safely carry their rated loads. Clearly mark each piece so that its capacity can be readily determined at the job site.

Perform an in-depth inspection of an applicable portion(s) of the temporary works, in the presence of the Engineer, not more than 24 hours prior to the beginning of each concrete placement. Inspect other temporary works at least once a month to ensure that they are functioning properly. Have a North Carolina Registered Professional Engineer inspect the cofferdams, shoring, sheathing, support of excavation structures, and support systems for load tests prior to loading.

## **B. Foundations**

Determine the safe bearing capacity of the foundation material on which the supports for temporary works rest. If required by the Engineer, conduct load tests to verify proposed bearing capacity values that are marginal or in other high-risk situations.

The use of the foundation support values shown on the contract plans of the permanent structure is permitted if the foundations are on the same level and on the same soil as those of the permanent structure.

Allow for adequate site drainage or soil protection to prevent soil saturation and washout of the soil supporting the temporary works supports.

If piles are used, the estimation of capacities and later confirmation during construction using standard procedures based on the driving characteristics of the pile is permitted. If preferred, use load tests to confirm the estimated capacities; or, if required by the Engineer conduct load tests to verify bearing capacity values that are marginal or in other high risk situations.

The Engineer reviews and approves the proposed pile and soil bearing capacities.

## **5.0 REMOVAL**

Unless otherwise permitted, remove and keep all temporary works upon completion of the work. Do not disturb or otherwise damage the finished work.

Remove temporary works in conformance with the contract documents. Remove them in such a manner as to permit the structure to uniformly and gradually take the stresses due to its own weight.

## **6.0 METHOD OF MEASUREMENT**

Unless otherwise specified, temporary works will not be directly measured.

## **7.0 BASIS OF PAYMENT**

Payment at the contract unit prices for the various pay items requiring temporary works will be full compensation for the above falsework and formwork.

## **SUBMITTAL OF WORKING DRAWINGS**

**(8-9-13)**

### **1.0 GENERAL**

Submit working drawings in accordance with Article 105-2 of the *Standard Specifications* and this provision. For this provision, “submittals” refers to only those listed in this provision. The list of submittals contained herein does not represent a list of required submittals for the project. Submittals are only necessary for those items as required by the contract. Make submittals that are not specifically noted in this provision directly to the Resident Engineer. Either the Structure Design Unit or the Geotechnical Engineering Unit or both units will jointly review submittals.

If a submittal contains variations from plan details or specifications or significantly affects project cost, field construction or operations, discuss the submittal with and submit all copies to the Resident Engineer. State the reason for the proposed variation in the submittal. To minimize review time, make sure all submittals are complete when initially submitted. Provide a contact name and information with each submittal. Direct any questions regarding submittal requirements to the Resident Engineer, Structure Design Unit contacts or the Geotechnical Engineering Unit contacts noted below.

In order to facilitate in-plant inspection by NCDOT and approval of working drawings, provide the name, address and telephone number of the facility where fabrication will actually be done if different than shown on the title block of the submitted working drawings. This includes, but is not limited to, precast concrete items, prestressed concrete items and fabricated steel or aluminum items.

### **2.0 ADDRESSES AND CONTACTS**

For submittals to the Structure Design Unit, use the following addresses:

Via US mail:

Mr. G. R. Perfetti, P. E.  
State Structures Engineer  
North Carolina Department  
of Transportation  
Structures Management Unit  
1581 Mail Service Center  
Raleigh, NC 27699-1581

Attention: Mr. P. D. Lambert, P. E.

Via other delivery service:

Mr. G. R. Perfetti, P. E.  
State Structures Engineer  
North Carolina Department  
of Transportation  
Structures Management Unit  
1000 Birch Ridge Drive  
Raleigh, NC 27610

Attention: Mr. P. D. Lambert, P. E.

Submittals may also be made via email.

Send submittals to:

[plambert@ncdot.gov](mailto:plambert@ncdot.gov) (Paul Lambert)

Send an additional e-copy of the submittal to the following address:

[jgaither@ncdot.gov](mailto:jgaither@ncdot.gov) (James Gaither)



[jlbolden@ncdot.gov](mailto:jlbolden@ncdot.gov)

(James Bolden)

For submittals to the Geotechnical Engineering Unit, use the following addresses:

For projects in Divisions 1-7, use the following Eastern Regional Office address:

Via US mail:

Mr. K. J. Kim, Ph. D., P. E.  
Eastern Regional Geotechnical  
Manager  
North Carolina Department  
of Transportation  
Geotechnical Engineering Unit  
Eastern Regional Office  
1570 Mail Service Center  
Raleigh, NC 27699-1570

Via other delivery service:

Mr. K. J. Kim, Ph. D., P. E.  
Eastern Regional Geotechnical  
Manager  
North Carolina Department  
of Transportation  
Geotechnical Engineering Unit  
Eastern Regional Office  
3301 Jones Sausage Road, Suite 100  
Garner, NC 27529

For projects in Divisions 8-14, use the following Western Regional Office address:

Via US mail:

Mr. Eric Williams, P. E.  
Western Regional Geotechnical  
Manager  
North Carolina Department  
of Transportation  
Geotechnical Engineering Unit  
Western Regional Office  
5253 Z Max Boulevard  
Harrisburg, NC 28075

Via other delivery service:

Mr. Eric Williams, P. E.  
Western Region Geotechnical  
Manager  
North Carolina Department  
of Transportation  
Geotechnical Engineering Unit  
Western Regional Office  
5253 Z Max Boulevard  
Harrisburg, NC 28075

The status of the review of structure-related submittals sent to the Structure Design Unit can be viewed from the Unit's web site, via the "Contractor Submittal" link.

Direct any questions concerning submittal review status, review comments or drawing markups to the following contacts:

Primary Structures Contact:

Paul Lambert (919) 707 – 6407  
(919) 250 – 4082 facsimile  
[plambert@ncdot.gov](mailto:plambert@ncdot.gov)

Secondary Structures Contacts:

James Gaither (919) 707 – 6409  
James Bolden (919) 707 – 6408

Eastern Regional Geotechnical Contact (Divisions 1-7):

K. J. Kim (919) 662 – 4710  
(919) 662 – 3095 facsimile  
[kkim@ncdot.gov](mailto:kkim@ncdot.gov)

Western Regional Geotechnical Contact (Divisions 8-14):

Eric Williams (704) 455 – 8902  
(704) 455 – 8912 facsimile  
[ewilliams@ncdot.gov](mailto:ewilliams@ncdot.gov)

### 3.0 SUBMITTAL COPIES

Furnish one complete copy of each submittal, including all attachments, to the Resident Engineer. At the same time, submit the number of hard copies shown below of the same complete submittal directly to the Structure Design Unit and/or the Geotechnical Engineering Unit.

The first table below covers “Structure Submittals”. The Resident Engineer will receive review comments and drawing markups for these submittals from the Structure Design Unit. The second table in this section covers “Geotechnical Submittals”. The Resident Engineer will receive review comments and drawing markups for these submittals from the Geotechnical Engineering Unit.

Unless otherwise required, submit one set of supporting calculations to either the Structure Design Unit or the Geotechnical Engineering Unit unless both units require submittal copies in which case submit a set of supporting calculations to each unit. Provide additional copies of any submittal as directed.

#### **STRUCTURE SUBMITTALS**

<b>Submittal</b>	<b>Copies Required by Structure Design Unit</b>	<b>Copies Required by Geotechnical Engineering Unit</b>	<b>Contract Reference Requiring Submittal <sup>1</sup></b>
Arch Culvert Falsework	5	0	Plan Note, SN Sheet & “Falsework and Formwork”
Box Culvert Falsework <sup>7</sup>	5	0	Plan Note, SN Sheet & “Falsework and Formwork”
Cofferdams	6	2	Article 410-4
Foam Joint Seals <sup>6</sup>	9	0	“Foam Joint Seals”
Expansion Joint Seals (hold down plate type with base angle)	9	0	“Expansion Joint Seals”
Expansion Joint Seals (modular)	2, then 9	0	“Modular Expansion Joint Seals”

Expansion Joint Seals (strip seals)	9	0	“Strip Seals”
Falsework & Forms <sup>2</sup> (substructure)	8	0	Article 420-3 & “Falsework and Formwork”
Falsework & Forms (superstructure)	8	0	Article 420-3 & “Falsework and Formwork”
Girder Erection over Railroad	5	0	Railroad Provisions
Maintenance and Protection of Traffic Beneath Proposed Structure	8	0	“Maintenance and Protection of Traffic Beneath Proposed Structure at Station ____”
Metal Bridge Railing	8	0	Plan Note
Metal Stay-in-Place Forms	8	0	Article 420-3
Metalwork for Elastomeric Bearings <sup>4,5</sup>	7	0	Article 1072-8
Miscellaneous Metalwork <sup>4,5</sup>	7	0	Article 1072-8
Optional Disc Bearings <sup>4</sup>	8	0	“Optional Disc Bearings”
Overhead and Digital Message Signs (DMS) (metalwork and foundations)	13	0	Applicable Provisions
Placement of Equipment on Structures (cranes, etc.)	7	0	Article 420-20
Pot Bearings <sup>4</sup>	8	0	“Pot Bearings”
Precast Concrete Box Culverts	2, then 1 reproducible	0	“Optional Precast Reinforced Concrete Box Culvert at Station ____”
Prestressed Concrete Cored Slab (detensioning sequences) <sup>3</sup>	6	0	Article 1078-11
Prestressed Concrete Deck Panels	6 and 1 reproducible	0	Article 420-3
Prestressed Concrete Girder (strand elongation and detensioning sequences)	6	0	Articles 1078-8 and 1078- 11
Removal of Existing Structure over Railroad	5	0	Railroad Provisions

Revised Bridge Deck Plans (adaptation to prestressed deck panels)	2, then 1 reproducible	0	Article 420-3
Revised Bridge Deck Plans (adaptation to modular expansion joint seals)	2, then 1 reproducible	0	“Modular Expansion Joint Seals”
Sound Barrier Wall (precast items)	10	0	Article 1077-2 & “Sound Barrier Wall”
Sound Barrier Wall Steel Fabrication Plans <sup>5</sup>	7	0	Article 1072-8 & “Sound Barrier Wall”
Structural Steel <sup>4</sup>	2, then 7	0	Article 1072-8
Temporary Detour Structures	10	2	Article 400-3 & “Construction, Maintenance and Removal of Temporary Structure at Station _____”
TFE Expansion Bearings <sup>4</sup>	8	0	Article 1072-8

#### FOOTNOTES

1. References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Articles refer to the *Standard Specifications*.
2. Submittals for these items are necessary only when required by a note on plans.
3. Submittals for these items may not be required. A list of pre-approved sequences is available from the producer or the Materials & Tests Unit.
4. The fabricator may submit these items directly to the Structure Design Unit.
5. The two sets of preliminary submittals required by Article 1072-8 of the *Standard Specifications* are not required for these items.
6. Submittals for Fabrication Drawings are not required. Submittals for Catalogue Cuts of Proposed Material are required. See Section 5.A of the referenced provision.
7. Submittals are necessary only when the top slab thickness is 18” or greater.

## GEOTECHNICAL SUBMITTALS

Submittal	Copies Required by Geotechnical Engineering Unit	Copies Required by Structure Design Unit	Contract Reference Requiring Submittal <sup>1</sup>
Drilled Pier Construction Plans <sup>2</sup>	1	0	Subarticle 411-3(A)
Crosshole Sonic Logging (CSL) Reports <sup>2</sup>	1	0	Subarticle 411-5(A)(2)
Pile Driving Equipment Data Forms <sup>2,3</sup>	1	0	Subarticle 450-3(D)(2)
Pile Driving Analyzer (PDA) Reports <sup>2</sup>	1	0	Subarticle 450-3(F)(3)
Retaining Walls <sup>4</sup>	8 drawings, 2 calculations	2 drawings	Applicable Provisions
Temporary Shoring <sup>4</sup>	5 drawings, 2 calculations	2 drawings	“Temporary Shoring” & “Temporary Soil Nail Walls”

### FOOTNOTES

- References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Subarticles refer to the *Standard Specifications*.
- Submit one hard copy of submittal to the Resident or Bridge Maintenance Engineer. Submit a second copy of submittal electronically (PDF via email) or by facsimile, US mail or other delivery service to the appropriate Geotechnical Engineering Unit regional office. Electronic submission is preferred.
- The Pile Driving Equipment Data Form is available from:  
[https://connect.ncdot.gov/resources/Geological/Pages/Geotech\\_Forms\\_Details.aspx](https://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx)  
See second page of form for submittal instructions.
- Electronic copy of submittal is required. See referenced provision.

## **CRANE SAFETY**

**(8-15-05)**

Comply with the manufacturer specifications and limitations applicable to the operation of any and all cranes and derricks. Prime contractors, sub-contractors, and fully operated rental companies shall comply with the current Occupational Safety and Health Administration regulations (OSHA).

Submit all items listed below to the Engineer prior to beginning crane operations involving critical lifts. A critical lift is defined as any lift that exceeds 75 percent of the manufacturer's crane chart capacity for the radius at which the load will be lifted or requires the use of more than one crane. Changes in personnel or equipment must be reported to the Engineer and all applicable items listed below must be updated and submitted prior to continuing with crane operations.

### **CRANE SAFETY SUBMITTAL LIST**

- A. **Competent Person:** Provide the name and qualifications of the "Competent Person" responsible for crane safety and lifting operations. The named competent person will have the responsibility and authority to stop any work activity due to safety concerns.
- B. **Riggers:** Provide the qualifications and experience of the persons responsible for rigging operations. Qualifications and experience should include, but not be limited to, weight calculations, center of gravity determinations, selection and inspection of sling and rigging equipment, and safe rigging practices.
- C. **Crane Inspections:** Inspection records for all cranes shall be current and readily accessible for review upon request.
- D. **Certifications:** **By July 1, 2006**, crane operators performing critical lifts shall be certified by NC CCO (National Commission for the Certification of Crane Operators), or satisfactorily complete the Carolinas AGC's Professional Crane Operator's Proficiency Program. Other approved nationally accredited programs will be considered upon request. All crane operators shall also have a current CDL medical card. Submit a list of anticipated critical lifts and corresponding crane operator(s). Include current certification for the type of crane operated (small hydraulic, large hydraulic, small lattice, large lattice) and medical evaluations for each operator.

**1.0 DESCRIPTION**

This special provision addresses grout for use in pile blockouts, grout pockets, shear keys, dowel holes and recesses for structures. This provision does not apply to grout placed in post-tensioning ducts for bridge beams, girders, or decks. Mix and place grout in accordance with the manufacturer's recommendations, the applicable sections of the Standard Specifications and this provision.

**2.0 MATERIAL REQUIREMENTS**

Use a Department approved pre-packaged, non-shrink, non-metallic grout. Contact the Materials and Tests Unit for a list of approved pre-packaged grouts and consult the manufacturer to determine if the pre-packaged grout selected is suitable for the required application.

When using an approved pre-packaged grout, a grout mix design submittal is not required.

The grout shall be free of soluble chlorides and contain less than one percent soluble sulfate. Supply water in compliance with Article 1024-4 of the Standard Specifications.

Aggregate may be added to the mix only where recommended or permitted by the manufacturer and Engineer. The quantity and gradation of the aggregate shall be in accordance with the manufacturer's recommendations.

Admixtures, if approved by the Department, shall be used in accordance with the manufacturer's recommendations. The manufacture date shall be clearly stamped on each container. Admixtures with an expired shelf life shall not be used.

The Engineer reserves the right to reject material based on unsatisfactory performance.

Initial setting time shall not be less than 10 minutes when tested in accordance with ASTM C266.

Test the expansion and shrinkage of the grout in accordance with ASTM C1090. The grout shall expand no more than 0.2% and shall exhibit no shrinkage. Furnish a Type 4 material certification showing results of tests conducted to determine the properties listed in the Standard Specifications and to assure the material is non-shrink.

Unless required elsewhere in the contract the compressive strength at 3 days shall be at least 5000 psi. Compressive strength in the laboratory shall be determined in accordance with ASTM C109 except the test mix shall contain only water and the dry manufactured material. Compressive strength in the field will be determined by molding and testing 4" x 8" cylinders in accordance with AASHTO T22. Construction loading and traffic loading shall not be allowed until the 3 day compressive strength is achieved.

When tested in accordance with ASTM C666, Procedure A, the durability factor of the grout shall not be less than 80.

### **3.0 SAMPLING AND PLACEMENT**

Place and maintain components in final position until grout placement is complete and accepted. Concrete surfaces to receive grout shall be free of defective concrete, laitance, oil, grease and other foreign matter. Saturate concrete surfaces with clean water and remove excess water prior to placing grout.

Do not place grout if the grout temperature is less than 50°F or more than 90°F or if the air temperature measured at the location of the grouting operation in the shade away from artificial heat is below 45°F.

Provide grout at a rate that permits proper handling, placing and finishing in accordance with the manufacturer's recommendations unless directed otherwise by the Engineer. Use grout free of any lumps and undispersed cement. Agitate grout continuously before placement.

Control grout delivery so the interval between placing batches in the same component does not exceed 20 minutes.

The Engineer will determine the locations to sample grout and the number and type of samples collected for field and laboratory testing. The compressive strength of the grout will be considered the average compressive strength test results of 3 cube or 2 cylinder specimens at 28 days.

### **4.0 BASIS OF PAYMENT**

No separate payment will be made for "Grout for Structures". The cost of the material, equipment, labor, placement, and any incidentals necessary to complete the work shall be considered incidental to the structure item requiring grout.



## **TIMBER BOARDWALK**

### **PART 1 - GENERAL**

#### **1.01 THE REQUIREMENT**

- A. The Contractor shall furnish and completely install new timber boardwalk to the lines and grades designated on the construction drawings or as directed by the engineer, including fabricating, erecting, treating and coating of the timber elements as specified in the construction drawings and these Specifications.
- B. For PDA testing of boardwalks, see plan notes on Sheet SB-1 and PART 4 of this specification.
- C. Timber boardwalks are to be constructed in accordance with NCDOT section 1082 unless noted otherwise in these specifications.

#### **1.02 MATERIALS**

- A. Materials shall be in accordance with the relevant paragraphs of the 2012 NCDOT Standard Specifications Section 1082. Have all timber and lumber, including any preservative treatment, inspected and/or tested at no cost to the Owner by an approved commercial inspection company (example A.W. Williams) before it is delivered to the project. Provide industry standard commercial inspection reports for each shipment of untreated timber or lumber prior to its use on the project. Provide industry standard commercial inspection reports and treatment test reports for each shipment of treated timber or lumber prior to its use on the project. Perform all timber and lumber treatment inspections in accordance with Standard M2 (Part A) of the AWPA Specifications. In addition, brand, hammer mark, ink stamp or tag each piece of timber or lumber with the approved commercial inspection company's unique mark to indicate it has been inspected.
- B. Timber piles shall be southern pine and conform to ASTM D25.. They shall possess a minimum tip diameter of 7.5" and conform to AASHTO Standard M 168 of Wood Products. Preservatives and Pressure Treatment Process shall be in accordance with AASHTO Standard M 133 and American Wood Preservers' Association (AWPA) standards. All pressure treated timber piles shall be Chromated Copper Arsenate (CCA) with minimum retentions of 0.8 lbs/cf.
- C. Posts and Timbers 5" and larger shall be pressure treated southern yellow pine grade 1 or better with a minimum Fb of 1350 psi, and shall conform to AASHTO Standard M 168 of Wood Products. Preservatives and Pressure Treatment Process shall be in accordance with AASHTO Standard M 133 and American Wood-Preservers' Association (AWPA) standards. Pressure treated timber components shall be Chromated Copper Arsenate (CCA) with minimum retentions of 0.60 lbs/c.f. All timber should be dressed cut S4S (surfaced four sides).
- D. Timbers 2"-4" thick shall be pressure treated southern yellow pine grade 1 or better with a minimum Fb of 1250 psi, and shall conform to AASHTO Standard M 168 of Wood Products. Preservatives and Pressure Treatment Process shall be in accordance with AASHTO Standard M 133 and American Wood-Preservers' Association (AWPA) standards. Pressure treated timber components shall be free of arsenic and shall be Alkaline Copper Quaternary Type D. Components

in direct contact with the soil shall be use condition UCB-4B, with minimum retentions of 0.6 lbs/cf. Other framing and handrail components not in direct contact with the soil shall be use condition UCB-3B, with minimum retentions of 0.15 lbs/cf. All timber should be dressed cut S4S (surfaced four sides).

- E. All fasteners to be in accordance with AASHTO Standard M 253 and shall be appropriate for selected timber and associated treatment methods.
- F. This material requirement is applicable to new boardwalks and existing boardwalks being repaired.

### 1.03 QUALITY CONTROL

- A. Quality Control shall be provided in accordance with ANSI/AITC A190.1-latest edition, the American Institute for Timber Construction “Standard for Heavy Timber Construction” AITC 108, American Wood-Preservers’ Association Standards, and the American Institute of Timber Construction Inspection Manual AITC-200, as applicable.
- B. Provide timber graded by an industry recognized agency.
  - 1. With rules and service complying with the requirements of American Lumber Standards Committee and PS 20.

## PART 2 - PRODUCTS

### 2.01 TIMBER

- A. All structural solid wood components shall comply with the American Institute for Timber Construction “Standard for Heavy Timber Construction” AITC 108 as applicable.

### PART 3 - EXECUTION

#### 3.01 GENERAL

- A. Boardwalk construction shall be in accordance with relevant paragraphs of the 2012 NCDOT Standard Specifications Section 1082.

#### 3.02 TOP DOWN BOARDWALK CONSTRUCTION

- A. Boardwalks are to be constructed using top down methods. Boardwalks are designed for a 90psf area load or H5 loading, whichever is controlling. The H5 loading is defined in the LRFD Guide Specifications for the Design of Pedestrian Bridges, 2009 edition. The Contractor shall provide to the Engineer for review and approval calculations signed and sealed by a registered professional engineer verifying that the equipment used to complete the construction will not exceed these loading criteria. Construction is to be completed in a fashion that does not damage, mar, or otherwise affect the structural capacity or appearance to users of the trail of any of the boardwalk materials. In addition, the construction methods shall not damage, mark, scuff, or otherwise mar the deck surface of the boardwalk. Materials deemed unsatisfactory by the Owner shall be replaced or repaired at no additional cost. Markings on the deck surface (i.e., rubber marks from equipment wheels) shall be removed in a manner that is approved in advance by the Engineer.

### PART 4 - PDA TESTING

#### 4.01 PILE DRIVING ANALYZER

- A. If required, test piles with a pile driving analyzer (PDA) manufactured by Pile Dynamics, Inc., analyze data and provide PDA reports. Perform PDA testing in accordance with ASTM D4945. Use a PDA Consultant prequalified by the NCDOT Contractual Services Unit for Pile Driving Analyzer Work (work code 3060) to perform PDA testing and analysis and provide PDA reports. When using a PDA Consultant, use a PDA Operator approved as a Field Engineer (key person) for the PDA Consultant. Also, provide PDA reports sealed by a Professional Engineer approved as a Project Engineer (key person) for the same PDA Consultant.
- B. The Engineer will determine the number of piles and which piles to be tested with a PDA. Do not drive piles with a PDA until the proposed pile driving methods and equipment has been preliminarily accepted. Notify the Engineer of the pile driving schedule a minimum of 7 calendar days in advance.
- C. The Engineer will complete the review and acceptance of the proposed pile driving methods and equipment and provide the blows per foot and equivalent set for 10 blows for the required driving resistance within 10 calendar days after the Engineer receives the PDA report or the Engineer finishes PDA testing. A PDA report for or PDA testing on multiple piles may be required as determined by the Engineer before the 10 day time period begins.

#### 4.02 PREPARATION

- A. Provide piles for PDA testing that are 5 ft (1.5 m) longer than the estimated pile lengths shown on the plans. Supply an AC electrical power source of a voltage and frequency suitable for computer equipment.
- B. Provide a shelter to protect the PDA equipment and operator from conditions of sun, water, wind and temperature. The shelter should have a minimum floor size of 6 ft by 6 ft (1.8 m by 1.8 m) and a minimum roof height of 8 ft (2.4 m). If necessary, heat or cool the shelter to maintain a temperature between 50 and 85 degrees F (10 and 30 degrees C). Place the shelter within 75 ft (23 m) of the pile such that the PDA cables reach the computer and the operator can clearly observe the pile. The Engineer may waive the shelter requirement if weather conditions allow.
- C. Drill up to a total of 16 bolt holes in either 2 or 4 sides of the pile, as directed by the PDA Consultant or Engineer, at an approximate distance equal to 3 times the pile diameter below the pile head. If the PDA Consultant or Engineer chooses to drill the bolt holes, provide the necessary equipment, tools and assistance to do so. A hammer drill is required for concrete piles. Allow for 2 hours per pile to drill holes.
- D. Lift, align and rotate the pile to be tested with a PDA as directed by the PDA Consultant or Engineer. Place the pile in the leads and template so that the PDA instruments and their accompanying wires will not be damaged. Attach PDA instruments as directed by the PDA Consultant or Engineer after the pile is placed in the leads and the template.

#### 4.03 TESTING

- A. Use only the preliminarily accepted pile driving methods and equipment to drive piles with the PDA instruments attached. Drive piles in accordance with this provision and as directed by the PDA Operator or Engineer. The PDA Operator or Engineer may require the Contractor to modify the pile installation procedure during driving. Dynamic measurements will be recorded and used to evaluate the hammer performance, driving resistance and stresses, energy transfer, pile integrity and various soil parameters such as quake and damping.
- B. If required, reattach the PDA instruments and restrike or redrive the pile in accordance with this provision. Obtain the required stroke and at least 6" (150 mm) of penetration as directed by the PDA Operator or Engineer. Dynamic measurements will be recorded during restriking and re-driving. The Engineer will determine when PDA testing has been satisfactorily completed.
- C. The Contractor is responsible in terms of both actual expense and time delays for any damage to the PDA instruments and supporting equipment due to the Contractor's fault or negligence. Replace any damaged equipment at no additional cost to the Department.

#### 4.04 ANALYSIS

- A. When using a PDA Consultant, analyze data with the CAse Pile Wave Analysis Program (CAPWAP), version 2006 or later, manufactured by Pile Dynamics, Inc. At a minimum, analysis is required for a hammer blow near the end of initial drive and for each restrike and redrive. Additional CAPWAP analysis may be required as determined by the PDA Consultant or Engineer.

#### 4.05 REPORT

- A. When using a PDA Consultant, submit 2 copies of each PDA report within 7 calendar days of completing field testing. Include the following in PDA reports:
1. Title Sheet
  2. Project Name as shown on Title Sheet of Plans
  3. Project description
  4. County
  5. Boardwalk number
  6. Pile location
  7. Personnel
  8. Report date
  9. Introduction
  10. Site and Subsurface Conditions (including water table elevation)
  11. Pile Details
  12. Pile type and length
  13. Required driving resistance and resistance factor
  14. Installation methods including use of predrilling, spudding, vibratory hammer, template, barge, etc.
  15. Driving Details
  16. Hammer make, model and type
  17. Hammer and pile cushion type and thickness
  18. Pile helmet weight
  19. Hammer efficiency and operation data including fuel settings, bounce chamber pressure, blows per minute, equipment volume and pressure
  20. Ground or mud line elevation and template reference elevation at the time of driving
  21. Final pile tip elevation
  22. Driving data (ram stroke, blows per foot (0.3 meter) and set for last 10 hammer blows)
  23. Restrike and redrive information
  24. PDA Field Work Details
  25. CAPWAP Analysis Results
  26. Table showing percent skin and tip, skin and toe damping, skin and toe quake and match quality
  27. Summary/Conclusions
- B. Attachments
1. Boring log(s)
  2. Pile driving equipment data form (from Contractor)
  3. Field pile driving inspection data (from Engineer)
  4. Accelerometer and strain gauge locations
  5. Accelerometer and strain gauge serial numbers and calibration information
  6. PDA hardware model and CAPWAP software version information
  7. Electronic copy of all PDA data and executable CAPWAP input and output files

#### PART 5 - MEASUREMENT AND PAYMENT

- A. Timber boardwalk (10 foot spans) will be measured and paid for as the actual linear feet of boardwalk incorporated in the work shown on the drawings. The contract unit price for Timber Boardwalk (10 foot spans) shall include full compensation for all labor, equipment, and materials, including drilling of holes to accept bolts, plates, bolts, nuts, washers, screws, other hardware, decking, girders, joists, blocking, braces, joist hangers, beams, post caps, cross bracing, railing, beam saddles and other items for a finished boardwalk with ten foot spans. Boardwalk posts shall be paid for separately.

<b>Pay Item</b>	<b>Pay Unit</b>
GENERIC STRUCTURE ITEM (LF) (BOARDWALK 10 FOOT SPANS)	LF

- B. Timber boardwalk (20 foot spans) will be measured and paid for as the actual linear feet of boardwalk incorporated in the work shown on the drawings. The contract unit price for Timber Boardwalk (20 foot spans) shall include full compensation for all labor, equipment, and materials, including drilling of holes to accept bolts, plates, bolts, nuts, washers, screws, other hardware, decking, girders, joists, blocking, braces, joist hangers, beams, post caps, cross bracing, railing, beam saddles and other items for a finished boardwalk with twenty foot spans. Boardwalk posts shall be paid for separately.

<b>Pay Item</b>	<b>Pay Unit</b>
GENERIC STRUCTURE ITEM (LF) (BOARDWALK 20 FOOT SPANS)	LF

- C. PDA Testing will be measured and paid for in units of each. No payment for PDA Testing will be made if the Engineer performs PDA testing. If the Engineer does not perform PDA testing, PDA Testing will be measured as one per pile. The contract unit price for PDA Testing will be full compensation for performing PDA testing the first time a pile is tested with a PDA, performing analysis on data collected during initial drive, restrikes and redrives and providing the PDA report. Subsequent PDA testing of the same piles will be considered incidental to the contract unit price for Pile Redrives.

<b>Pay Item</b>	<b>Pay Unit</b>
PDA Testing	EA

- D. Boardwalk posts shall be measured and paid for as the actual linear feet of posts incorporated in the work shown on the drawings. The contract unit price for Boardwalk Posts shall include full compensation for all labor, equipment, and materials required for a finished installation.

<b>Pay Item</b>	<b>Pay Unit</b>
GENERIC STRUCTURE ITEM (LF) (BOARDWALK POSTS 7.5" MIN. TIP DIAMETER)	LF

- END OF SECTION -

## **CONCRETE APPROACH**

The quantity of “Concrete Approach” to be paid for will be the actual number of approaches installed as shown in the Drawings and incorporated into the Work. Concrete Approaches to Boardwalks are used at the beginning and end of each Boardwalk and are shown on Sheet SB-6. Concrete Approaches to Bridges are used at bridge approaches as shown on Sheet S11. Concrete used in Concrete Approach slabs is to be Class B per Section 1000 of the *NCDOT Standard Specifications*.

The unit price for “Concrete Approach” shall include full compensation for all labor, equipment, and materials, including excavation, compaction, ABC stone, forming, placing, finishing and curing of concrete, reinforcing steel, welded wire fabric, ties, finishing and all other required items of work associated with the Concrete Approach.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Concrete Approach	Each

## **PREFABRICATED PEDESTRIAN BRIDGE**

### **PART 1 - GENERAL**

- A. This project special provision is for fully engineered clear span bridges of steel construction and shall be regarded as minimum standards for design and construction.
- B. Structural Design of the bridge structure shall be performed by or under the direct supervision of a licensed professional engineer and done in accordance with recognized engineering practices and principles. The engineer shall be licensed to practice in North Carolina.

### **PART 2 – QUALIFIED SUPPLIERS**

The Contractor is required to obtain a pedestrian bridge from a manufacturer that is prequalified with the NCDOT and shall identify the manufacture in their bid package. Below is a list of currently preapproved manufacturers the Contractor may use:

CONTECH Bridge  
8301 State Highway 29 North  
Alexandria, MN 56308  
800-328-2047

Big R Bridge  
19060 WCR 66  
Greeley, CO 80631  
800-234-0734

Pedestrian Bridge Vendors not listed above will not be allowed unless they are prequalified with the NCDOT before the bid opening. The vendor must have written documentation from the NCDOT stating that they are prequalified. Any bids that used non-prequalified vendors are subject to rejection.

### **PART 3 – DESIGN FEATURES**

Bridge shall be designed as a truss system with 10.0 feet minimum clear width and a cast in place colored concrete deck. The vertical height from top of finished deck to low bridge chord shall be a maximum of 2.45 feet for Bridge S-1 and 2.0 feet for Bridge S-2. All members of the vertical trusses shall be fabricated from structural steel shapes or square or rectangular structural steel tubing. Bridge S-1 shall have a “Bowstring” truss layout similar to what is shown on drawing S-2. Design loads are to include pedestrian and vehicular loads as required by *AASHTO LRFD Guide Specifications for Design of Pedestrian Bridges*, Article 3.1 and 3.2.

Unless the floor and fastenings are specifically designed to provide adequate lateral support to the top flange of open shape stringers (W shapes or channels), a minimum of one stiffener shall be provided in each stringer at every floor beam location.

The bridge shall be provided with a continuous pedestrian/ bicycle railing on each side of the bridge with a minimum height of 48”. Design the vertical and/ or horizontal members of this



railing to meet all geometric and loading requirements for pedestrian and bicycle bridge rails, as outlined in Section 13.10 of *AASHTO LRFD Bridge Design Specifications*. In addition, the openings between members of a pedestrian railing shall not allow a 4 inch sphere to pass through the lower 27 inches of the railing and a 6 inch sphere should not pass through any openings above 27 inches.

As a minimum, three rails shall be provided:

- A top rail at a minimum height of 48 inches above the top of deck.
- A bottom rail mounted at a height adequate to provide a 2" gap between the bottom of the rail and the top of the deck.
- A rail at mid-height between the top and bottom rails.

The bridge shall be provided with continuous handrails on each side of the bridge. Handrails shall be provided with a minimum 1-1/2" knuckle space between the railing and the truss verticals and diagonals, fencing, or other portions of the rail assembly. The rails shall be located 36" above the deck surface. The handrails shall be secure and shall not rotate in their fittings. The mounting of the handrails shall be such that the completed handrail and supports are capable of withstanding standard AASHTO loadings. The handrail shall deflect no more than 1/4" under this loading. The end of the railing shall be capped with a flush end cap.

Handrail attachment brackets shall be of steel, matching the bridge superstructure.

The bridge shall have a vertical camber dimension at midspan at least equal to 100% of the full dead load deflection.

Unless indicated otherwise in this specification, pedestrian bridge design shall be in accordance with all requirements of *AASHTO LRFD Guide Specifications for Design of Pedestrian Bridges*. More specific requirements are listed below.

Design loads, pedestrian, vehicular, wind, and combinations shall be in accordance with the *AASHTO LRFD Guide Specifications for Design of Pedestrian Bridges*. Deflections, vibrations, fatigue, and other design details shall adhere to AASHTO requirements.

The minimum thickness of all structural steel members shall be 1/4" nominal and be in accordance with the AISC Manual of Steel Construction's "Standard Mill Practice Guidelines." For ASTM A500 and ASTM A847 tubing, the section properties used for design shall be per the Steel Tube Institute of North America's Hollow Structure Sections "Dimension and Section Properties."

## **Construction**

Structural Members shall be designed in accordance with recognized engineering practices and principles as follows:

### **Structural Steel Allowable Stresses**

American Association of State Highway and Transportation Officials (AASHTO)

Allowable Design Stresses shall be in accordance with the AASHTO “Standard Specifications for Highway Bridges,” latest addition.

### Welded Connections

American National Standards Institute/ American Welding Society (ANSI/ AWS)

All welded connections shall be checked, when within applicable limits, for the limiting failure modes outlined in the latest ANSI/ AWS D1.1 Structural Welding Code.

When outside the “validity range” defined in these design guidelines, the following limit states or failure modes must be checked:

- Chord face plastification
- Punching shear (through main member face)
- Material failure
  - Tension failure of the web member
  - Local buckling of a compression web member
- Weld failure
  - Allowable stress based on “effective lengths”
  - “Ultimate” capacity
- Local buckling of a main member face
- Main member failure:
  - Web or sidewall yielding
  - Web or sidewall crippling
  - Web or sidewall buckling
  - Overall shear failure

All tubular joints shall be plain unstiffened joints (made without the use of reinforcing plates) except as follows:

- Floor beams hung below the lower chord of the structure may be constructed with or without stiffener (or gusset) plates, as required by design.
- Floor beams that frame directly into the truss verticals (H-section bridges) may be designed with or without end stiffening plates as required by design.
- Where chords, end floor beams, and, in high profiles, the top end struts weld to the end verticals, the end verticals (or connections) may require stiffening to transfer the forces from these members into the end vertical.
- Truss vertical to chord connections.

NOTE: The effects of fabrication tolerances shall be accounted for in the design of the structure. Special attention shall be given to the actual fit-up gap at welded truss joints.

All welded splices shall be in accordance with the *American National Standards Institute/American Welding Society (ANSI/ AWS)* and *American Institute of Steel Construction (AISC)*.

No welded field splices will be allowed. If shop welded splices are necessary, they shall be indicated on the submitted shop drawings.

All bolted splices shall be in accordance with the *American Institute of Steel Construction (AISC)*.

Bolted field splices shall be located on the bridge to produce a bridge that can be economically shipped and erected. Splices along the length of the bridge (in chords and diagonals) shall be placed at the approximately mid-point of a bay (between two panel points). Splices across the width of the bridge (in floor beams and wind braces) may be used, when necessary, to keep the overall structure width within reasonable limits for shipping.

### **Materials and Inspection**

Unless noted otherwise, all materials, construction, and inspection shall be in accordance with Section 1072 of the 2012 *NCDOT Standard Specifications for Roads and Structures*.

Within seven (7) days after contract execution, the fabricator shall notify the Engineer to allow for communication between the fabricator and the Engineer regarding certification, material sampling and testing, and other items stated in Section 1072 of the 2012 *NCDOT Standard Specifications for Roads and Structures*.

Bridges shall be fabricated from high-strength, low-alloy, atmospheric corrosion resistant ASTM A847 cold-formed, welded square and rectangular tubing and/or atmospheric corrosion resistant ASTM A588, ASTM A242, and ASTM A606 plate and structural steel shapes ( $F_y = 50,000$  psi). The minimum corrosion index of the atmospheric corrosion resistant steel, as determined in accordance with ASTM G101, shall be 6.0.

Bolts, nuts, and washers shall be in accordance with Section 1072-7(F) of the 2012 *NCDOT Standard Specifications for Roads and Structures*.

The bridge deck shall be composed of a reinforced colored concrete deck. For colored concrete deck, see special provisions.

### **Submittals**

Schematic drawings and diagrams shall be submitted to the Engineer for their review after receipt of order. Submittal drawings shall be unique drawings, prepared to illustrate the specific portion of the work to be done. All relative design information such as member sizes, bridge reactions, and general notes shall be clearly specified on the drawings. Drawings shall have cross referenced details and sheet numbers. All drawings shall be signed and sealed by a Professional Engineer who is licensed as outlined in Part 1 of this specification.

Structural calculations and special provisions for the bridge superstructure shall be submitted by the bridge manufacturer and reviewed by the Engineer. All calculations and special provisions shall be signed and sealed by a Professional Engineer who is licensed as outlined in Part 1. The calculations shall include all design information necessary to determine the structural adequacy of the bridge. The calculations shall include, but are not limited to, the following:

- All AASHTO allowable stress checks for axial, bending, and shear forces in the critical member of each truss member type (i.e., top chord, bottom chord, floor beam, etc.).
- Checks for the critical connection failure modes for each truss member type (i.e., diagonal, floor beam, etc.). Special attention shall be given to all welded tube-ontube connections.
- All bolted splice connections.
- Main truss deflection checks.
- U-Frame stiffness checks (used to determine “K” factors for out-of-plane buckling of the top chord) for all half through or “pony” truss bridges.
- Deck design.

Note that all shop drawings and calculations are subject to the approval of the NCDOT Structure Design Unit if the project is funded with Federal or State funds.

## **Fabrication**

When the collection of water inside a structural tube is a possibility, either during construction or during service, the tube shall be provided with a drain hole at its lowest point. Drain holes shall be considered during structural design and analysis. Drain holes shall be drilled during fabrication. On site drilling of drain holes will not be allowed without written consent of the design engineer (and NCDOT if applicable).

Special attention shall be given to developing sufficient weld throats on tubular members. Fillet weld details shall be in accordance with AWS D1.1, Section 3.9 (See AWS Figure 3.2). Unless determined otherwise by testing, the loss factor “Z” for heel welds shall be in accordance with AWS Table 2.8. Fillet welds that run onto the radius of a tube shall be built up to obtain the full throat thickness. The maximum root openings of fillet welds shall not exceed 3/16” in conformance with AWS D1.1, Section 5.22. Weld size or effective throat dimensions shall be increased in accordance with this same section when applicable (i.e., fit-up gaps > 1/16”).

The fabricator shall have verified that the thickness of partial joint penetration groove welds (primarily matched edge welds or the flare-bevel-groove welds on underhung floor beams) shall be obtainable with their fit-up and weld procedures. Matched edge welds shall be “flushed” out when required, to obtain the full throat or branch member wall thickness.

For full penetration butt welds of tubular members, the backing material shall be fabricated prior to installation in the tube, so as to be continuous around the full tube perimeter, including corners. Backing may be of four types:

- A “box” welded up from four (4) plates.
- Two “channel” sections, bent to fit the inside radius of the tube, welded together with full penetration welds.
- A smaller tube section that slides inside the spliced tube.
- A solid plate cut to fit the inside radius of the tube.

Corners of the “box” backing, made from four plates, shall be welded and ground to match the inside corner radii of the chords. The solid plate option shall require a weep hole either in the chord wall above the “high side” of the plate or in the plate itself. In all types of backing, the minimum fit-up tolerances for the backing must be maintained at the corners of the tubes, as well as across the “flats.”

All welds shall be visually inspected. A minimum ten percent (10%) of all fillet welds shall be tested by Magnetic Particle Testing (MT). All (100%) full penetration welds shall be subject to Radiographic Testing (RT). Welding inspection and testing shall be subject to the requirements of AWS D1.1 or AWS 1.5, whichever is applicable and more stringent. Also, please refer to Section 1072 of the 2012 *NCDOT Standard Specifications for Roads and Structures*.

Bridge shall be fabricated by a fabricator that is currently certified by the American Institute of Steel Construction to have the personnel, organization, experience, capability, and commitment to produce fabricated structural steel for the category “Simple Steel Bridges,” as set forth in then AISC Certification Program. Quality control shall be in accordance with procedures outlined for AISC certification.

### **Delivery and Erection**

Delivery is made to a location nearest the site that is easily accessible to normal over-the-road tractor-trailer equipment. All trucks delivering bridge materials shall be unloaded at the time of arrival.

The manufacturer shall provide detailed, written instruction in the proper lifting procedures and splicing procedures (if required). The method and sequence of erection shall be the responsibility of the Contractor, unless specifically directed by the manufacturer in such matters.

The bridge manufacturer shall provide written inspection and maintenance procedures to be followed by the bridge owner.

### **Foundations**

Unless specified otherwise, the bridge manufacturer shall determine the number, location and layout, diameter, minimum grade, finish, and embedment of all anchor bolts. The anchor bolts shall be designed to resist all horizontal and uplift forces to be transferred by the superstructure to the supporting foundations. The Contractor shall provide and install anchor bolts in accordance with the bridge manufacturer’s anchor bolt plans and requirements.

Information as to bridge support reactions and anchor bolt locations and requirements shall be furnished by the bridge manufacturer after receipt of order and after the bridge design is complete.

### **Warranty**

The bridge manufacture shall warrant their steel structure(s) to be free of design, material, and workmanship defects for a period of ten (10) years from the date of delivery. This guarantee is not a condition of the Contract Performance Bond.

This warranty shall not cover defects in the bridge caused by abuse, misuse, overloading, accident, improper maintenance, alteration, or any other cause not the result of defective materials or workmanship.

This warranty shall be void unless owner's maintenance records can be supplied. Such records shall indicate compliance with minimum guidelines specified in the inspection and maintenance procedures.

Repair or replacement shall be the exclusive remedy for defects under this warranty. The bridge manufacturer shall not be liable for any consequential or incidental damages for breach of any express or implied warranty on their structures.

### **Measurement and Payment**

The Prefabricated Bridge shall be paid for at the contract lump sum price per each bridge. The lump sum price shall include full compensation for all labor, materials, equipment, and submittals needed to complete fabrication of the bridge.

Bridge Erection shall be paid for the delivery of the bridge structure to the site as described herein, and the erection and installation of the bridge at the horizontal and vertical location shown in the plans. The lump sum price shall include full compensation for all labor, materials, and equipment needed to complete delivery, erection, and installation of the bridge.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
GENERIC STRUCTURE ITEM (LS) (PREFABRICATED BRIDGE, ____')	LS
GENERIC STRUCTURE ITEM (LS) (____' BRIDGE ERECTION)	LS

## **CONSTRUCTION OF SUBSTRUCTURE**

Furnish and place all reinforcing steel, concrete, and incidentals necessary to construct all end bents. Exclude all piles and drilled shafts from the pay item.

Complete all work in accordance with the contract plans and the Standard Specifications except payment for these items will be as described below.

Drilled piers shall be constructed according to Section 411 of the Standard Specifications. End bent caps shall be constructed of Class A Concrete according to Section 1000 of the Standard Specifications. Refer to the plans for all other details.

No measurement will be made for these items. The price and payment below will be full compensation for all items required to complete the work described above.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
GENERIC STRUCTURE ITEM (LS)	LS
(___' BRIDGE SUBSTRUCTURE)	

## **REINFORCED CONCRETE DECK SLAB**

**(SPECIAL)**

### **GENERAL**

This Special Provision governs materials, forming and all other related work in the construction of a reinforced concrete deck slab in accordance with applicable parts of the Standard Specifications, the details shown on the plan, and as outlined in these Special Provisions.

Design and submit to the Engineer for approval a 6" minimum Reinforced Concrete Deck Slab. Provide design calculations and supporting data, sealed by a North Carolina Registered Professional Engineer, in sufficient detail to permit a structural review. For design loads, see Project Special Provision for "Prefabricated Pedestrian Bridge".

### **MATERIALS**

Concrete to be used in the Reinforced Concrete Deck Slab shall be colored and be either Class AA concrete or sand lightweight concrete. Class AA concrete must meet the requirement of Section 1000 of the Standard Specifications. If Sand Lightweight Concrete is used, concrete is to meet requirements of Special Provision for "Sand Light Concrete." See "Colored Concrete" Special Provision for colored concrete requirements.

### **BASIS OF PAYMENT**

The full cost of Reinforced Concrete Deck shall be included in the pay item for "Bridge Concrete Deck". The Reinforced Concrete Deck cost will be full compensation for all work covered by this Special Provision and applicable parts of the Standard Specifications, but not limited to furnishing and placing concrete, reinforcing steel, joint filler and sealer, curing, crack repair and any other material; erecting and removing all falsework and forms including any appurtenances required by the Engineer to stabilize the trusses construction; protecting concrete in wind, rain, low humidity, high temperatures or other unfavorable weather, construction joints, finishing concrete and curing concrete.

#### **Pay Item**

GENERIC STRUCTURE ITEM (LS)  
(\_\_\_' BRIDGE CONCRETE DECK)

#### **Pay Unit**

LS



## **SAND LIGHTWEIGHT CONCRETE**

**(7-18-06)**

The contractor has the option of using sand lightweight concrete or conventional Class AA concrete for the reinforced concrete deck slab on the bridge. The contractor shall coordinate closely with the prefabricated bridge manufacturer on the type of concrete used.

Sand lightweight concrete (if used) shall meet the requirements of this Special Provision. Sand lightweight concrete is composed of Portland cement, fine aggregate, lightweight coarse aggregate, water and admixtures. Provide sand lightweight concrete that complies with applicable requirement of Section 420, 1000, and 1024 of the Standard Specifications and the additional requirements herein.

Submit a mix design from a testing laboratory approved by the NC Division of Highways for approval at least 35 days prior to the proposed use. Provide a mix meeting Table 1000-1 of the Standard Specifications and the following design criteria:

TEST	TEST METHOD	REQUIREMENT
Max. Unit Weight, plastic, lbs/ft <sup>3</sup> (kg/m <sup>3</sup> )	AASHTO T 121	120 (1925)
Max. Unit Weight, dry, lbs/ft <sup>3</sup> (kg/m <sup>3</sup> )	ASTM C567 using equilibrium air dried unit weight	115 (1845)
Min. Relative Dynamic Modulus, (percent)	AASHTO T161 Procedure A	80

When submitting the mix design, include the source of the aggregates, cement, and admixtures and the gradation, specific gravity and fineness modulus (fine aggregate only) of the aggregates. Submit test results showing the mix design conforms to the criteria, including the 28 day compressive strength of a minimum of six cylinders. Provide a mix design that produces an average compressive strength sufficient to ensure that a minimum strength of 4500 psi (31.0 MPa) is achieved in the field.

Produce an additional mix in accordance with AASHTO M195 to determine the drying shrinkage. The maximum drying shrinkage for this mix is 0.07%.

For lightweight aggregate, use expanded shale or slate that meets the requirements of AASHTO M195. Grade the lightweight aggregate in accordance with 1014-2(E)(6).

Determine the soundness in accordance with AASHTO T104. Loss of more than 10% of the lightweight aggregate in five cycles of the accelerated soundness test using sodium sulfate is not permitted.

Ensure the lightweight aggregate is in a saturated surface-dry condition when it is proportioned.

## **COLORED CONCRETE**

### **Description**

This section describes coloring concrete used to construct work under other contract bid items as well as any special materials and special construction techniques associated with using colored concrete.

### **Materials**

#### **Concrete**

Integrally color concrete using non-fading pigments conforming to ASTM C979. The contractor shall work with the owner to select the pigment of the concrete.

Add integral concrete colorant according to manufacturer's instructions. Provide a copy of those manufacturer instructions to the engineer before producing material for incorporation into the work.

Maintain mix characteristics for colored concrete requiring a matching finish. Use the same source, brand, type, and color of cement, supplementary cementitious materials, aggregates, and admixtures for colored concrete throughout the project. Use constant cement content, supplementary cementitious material content, and water/cementitious materials ratio to maintain consistent color.

#### **Curing Compound**

Furnish a liquid membrane-forming clear curing compound conforming to ASTM C1315, type 1.

#### **Admixtures**

Furnish admixtures designed for use with and compatible with colored concrete pigments. Do not use calcium chloride or other admixtures containing chlorides.

### **Colored Concrete Mix Approval**

#### **General**

Obtain engineer approval for colored concrete mixes before placing colored concrete. The engineer will base approval either on a successful performance history or on trial batches. Upon engineer approval, the submitted sample panel or the test slab will be the visual quality standard for finished work under the contract.

#### **Performance History**

Use the same materials mixed in the same proportions as used on another department project where the engineer approved the color the current contract Coloring Concrete bid item designates. Ensure that all materials, including admixtures, are of the same type and brand and from the same sources. Provide the following to the engineer for review and approval:

1. Project Info: Project ID, and location.
2. Mix proportions: quantities per cubic yard expressed as SSD weights and net water, water to cementitious material ratio, air content, and 28-day or earlier compressive strength.
3. Materials: type, brand, and source.
4. Sample panel: a finished colored concrete sample from the previous project having minimum dimensions of 2-foot by 2-foot by 1.5-inch.

#### **Trial Batches**

The contractor may use preliminary laboratory or field trial batching to establish the mix proportions necessary to conform to the contract-required color.

Produce test slabs to demonstrate the texture, surface finish, color, and color intensity. At least 2 business days in advance, provide the engineer with the date and time for test slab construction.

At an engineer-allowed location on the project, place, finish, and cure a 10-foot by 10-foot by 6-inch colored concrete test slab using the same methods proposed for contract work. Produce test slabs using the same workers designated to perform the contract work. Retain samples of cements, sands, aggregates, and color additives used in test slabs for comparison with materials used in contract work.

Use at least a 2-cubic yard batch or a batch of the size proposed for production whichever is larger. Dispose of surplus or unsuitable material as specified in the Standard Specifications.

Submit final mix design information to the engineer. Including specific sources and, if applicable, trade names for materials.

### **Construction**

Construct work incorporating colored concrete conforming to contract specifications under the associate bid items except cure with clear curing compound and use only non-chloride admixtures.

Produce consistently colored concrete in full cubic yard increments. The engineer will not allow variations in the amounts, types, or source of materials with the exception of minor adjustments of water and air-entraining agent. Other changes require mix re-approval.

Schedule placement to minimize exposure to rapid drying conditions, wind and full sun, before applying curing compound. Do not place colored concrete if rain, snow, or freezing temperatures are forecast within 24-hours.

Cover or otherwise protect adjacent concrete work from discoloration and spillage while placing and curing colored concrete. Remove and replace discolored concrete as the engineer directs.

Perform finishing operations consistently to avoid color variation. Do not begin finishing while bleed water is present. The engineer will order removal and replacement of colored concrete if the contractor adds water to the surface to aid in finishing. Apply strokes in the same direction during final finishing and texturing.

Protect colored concrete from premature drying and excessive cold or hot temperatures by promptly applying curing compound. Do not allow plastic sheeting to come in contact with colored concrete.

Protect the colored concrete from damage. Do not permit construction traffic or material storage on colored concrete. Exclude foot traffic from colored concrete for at least 24 hours after placement.

Remove test slabs not permanently incorporated into the work and restore the site after the engineer determines the test slab is no longer needed.

### **Measurement & Payment**

No additional payment will be made for the use of colored concrete. The cost of this work shall be distributed to the other bid items.

## **SOLDIER PILE RETAINING WALLS**

**(11-19-13)**

### **1.0 GENERAL**

Construct soldier pile retaining walls consisting of driven or drilled-in steel H-piles with either precast concrete panels in between piles or a cast-in-place reinforced concrete face attached to front of piles unless required otherwise in the plans. Timber lagging is typically used for temporary support of excavations during construction. Provide cast-in-place reinforced concrete coping as required. Design and construct soldier pile retaining walls based on actual elevations and wall dimensions in accordance with the contract and accepted submittals. Use a prequalified Cantilever Wall Contractor to construct soldier pile retaining walls. Define “soldier pile wall” as a soldier pile retaining wall. Define “panel” as a precast concrete panel and “concrete facing” as a cast-in-place reinforced concrete face. Define “pile” as a steel H-pile and “coping” as cast-in-place concrete coping.

### **2.0 MATERIALS**

Refer to the *Standard Specifications*.

<b>Item</b>	<b>Section</b>
Anchor Pins	1056-2
Curing Agents	1026
Flowable Fill, Excavatable	1000-6
Geosynthetics	1056
Joint Materials	1028
Masonry	1040
Neat Cement Grout, Nonshrink	1003
Portland Cement Concrete	1000
Reinforcing Steel	1070
Retaining Wall Panels	1077
Select Material, Class VI	1016
Shoulder Drain Materials	816-2
Steel H-Piles	1084-1
Untreated Timber	1082-2
Welded Stud Shear Connectors	1072-6
Wire Staples	1060-8(D)

Provide Type 2 geotextile for separation geotextiles and Class VI select material (standard size No. 57 stone) for leveling pads and backfilling. Use Class A concrete for concrete facing and coping and Class A concrete that meets Article 450-2 of the *Standard Specifications* for drilled-in piles. Use untreated timber with a thickness of at least 3" and a bending stress of at least 1,000 psi for timber lagging.

Unless required otherwise in the contract, produce panels with a smooth flat final finish that meets Article 1077-11 of the *Standard Specifications*. When noted in the plans, produce panels with an exposed aggregate finish that meets Article 1077-12 of the *Standard Specifications*. Produce panels within 1/4" of the panel dimensions shown in the accepted submittals. Damaged panels with excessive discoloration, chips or cracks as

determined by the Engineer will be rejected.

For soldier pile walls with panels, galvanize piles in accordance with Section 1076 of the *Standard Specifications*. When noted in the plans, paint galvanized piles in accordance with Article 442-12 of the *Standard Specifications*. Apply the following system to paint galvanized piles gray with waterborne paints that meet Article 1080-11 of the *Standard Specifications*. For painting galvanized piles other colors, contact the Materials and Tests (M&T) Unit for an appropriate paint system.

<b>GRAY PAINT SYSTEM FOR GALVANIZED PILES</b>			
<b>Coat</b>	<b>Color</b>	<b>Dry/Wet Film Thickness (Mils)</b>	
		<b>Min.</b>	<b>Max.</b>
Intermediate	Brown	3.0 DFT	5.0 DFT
Stripe	White	4.0 WFT	7.0 WFT
Topcoat	Gray	2.0 DFT	4.0 DFT
<b>Total</b>		<b>5.0 DFT</b>	<b>9.0 DFT</b>

Store steel materials on blocking at least 12" above the ground and protect it at all times from damage; and when placing in the work make sure it is free from dirt, dust, loose mill scale, loose rust, paint, oil or other foreign materials. Load, transport, unload and store soldier pile wall materials so materials are kept clean and free of damage. Bent, damaged or defective materials will be rejected.

### **3.0 PRECONSTRUCTION REQUIREMENTS**

#### **A. Soldier Pile Wall Surveys**

The Retaining Wall Plans show a plan view, typical sections, details, notes and an elevation or profile view (wall envelope) for each soldier pile wall. Before beginning soldier pile wall design, survey existing ground elevations shown in the plans and other elevations in the vicinity of soldier pile wall locations as needed. Based on these elevations, finished grades and actual soldier pile wall dimensions and details, submit revised wall envelopes for acceptance. Use accepted wall envelopes for design.

#### **B. Soldier Pile Wall Designs**

Submit 11 copies of working drawings and 3 copies of design calculations and a PDF copy of each for soldier pile wall designs at least 30 days before the preconstruction meeting. Do not begin soldier pile wall construction until a design submittal is accepted.

Use a prequalified Cantilever Wall Design Consultant to design soldier pile walls. Provide designs sealed by a Design Engineer approved as a Geotechnical Engineer (key person) for the Cantilever Wall Design Consultant.

Design soldier pile walls in accordance with the plans and Article 11.8 of the *AASHTO LRFD Bridge Design Specifications* unless otherwise required. Design soldier pile

walls for seismic if walls are located in seismic zone 2 based on Figure 2-1 of the *Structure Design Manual*. Design soldier pile walls for a maximum deflection of 2" or 1.5% of H, whichever is less, with H as shown in the plans.

When noted in the plans, design soldier pile walls for a live load (traffic) surcharge of 250 lb/sf in accordance with Article 11.5.6 of the AASHTO LRFD specifications. For steel beam guardrail with 8 ft posts above soldier pile walls, analyze walls for a horizontal load ( $P_{HI}$ ) of 300 lb/ft of wall in accordance with Figure 3.11.6.3-2(a) of the AASHTO LRFD specifications. For concrete barrier rail above soldier pile walls, analyze walls for a  $P_{HI}$  of 500 lb/ft of wall in accordance with Figure 3.11.6.3-2(a).

Use a maximum H-pile spacing of 10 ft. At the Contractor's option, use driven or drilled-in piles for soldier pile walls with concrete facing unless otherwise required. For soldier pile walls with panels, use drilled-in piles unless noted otherwise in the plans. Use concrete or grout for embedded portions of drilled-in piles. Install drilled-in piles by excavating holes with diameters that will result in at least 3" of clearance all around piles.

Provide temporary support of excavations for excavations more than 4 ft deep and timber lagging in accordance with the *AASHTO Guide Design Specifications for Bridge Temporary Works*. At the Contractor's option and when noted in the plans, provide temporary slopes instead of temporary support of excavations. Do not extend temporary slopes outside right-of-way or easement limits. Except for fill sections or when using temporary slopes, backfill voids behind panels, lagging and piles with No. 57 stone. Place separation geotextile between No. 57 stone and overlying fill or pavement sections except when concrete pavement, full depth asphalt or cement treated base is placed directly on stone.

At the Contractor's option, use panels or concrete facing unless required otherwise in the plans. Design panels and concrete facing in accordance with the plans and Section 5 of the *AASHTO LRFD Bridge Design Specifications*. Provide reinforcing steel of sufficient density to satisfy Article 5.7.3.4 of the AASHTO LRFD specifications. Use panels or concrete facing with the dimensions shown in the plans and attach facing to front of H-piles with welded stud shear connectors.

Use No. 57 stone for aggregate leveling pads. Use 6" thick leveling pads beneath panels and concrete facing. Unless required otherwise in the plans, embed top of leveling pads at least 12" below bottom of walls shown in the plans.

Provide wall drainage systems consisting of geocomposite drain strips, drains and outlet components. Place drain strips with a horizontal spacing of no more than 10 ft and center strips between adjacent piles. Attach drain strips to front of timber lagging or back of panels or concrete facing and connect strips to leveling pads. Locate a continuous aggregate shoulder drain along the base of panels or concrete facing in front of piles and leveling pads. Provide drains and outlet components in accordance with Standard Drawing No. 816.02 of the *Roadway Standard Drawings*.

Unless required otherwise in the plans, use cast-in-place reinforced concrete coping at top of soldier pile walls with panels. Use coping dimensions shown in the plans and at the Contractor's option, connect coping to panels with dowels or extend coping down back of panels. When concrete barrier rail is required above soldier pile walls, use concrete barrier rail with moment slab as shown in the plans.

Submit working drawings and design calculations for acceptance in accordance with Article 105-2 of the *Standard Specifications*. Submit working drawings showing plan views, wall profiles with pile locations, typical sections and details of piles, drainage, temporary support, leveling pads, panels and concrete facing. If necessary, include details on working drawings for coping, concrete barrier rail with moment slab and obstructions extending through walls or interfering with piles, barriers or moment slabs. Submit design calculations including deflection calculations for each wall section with different surcharge loads, geometry or material parameters. Include analysis of temporary conditions in design calculations. When designing soldier pile walls with computer software, a hand calculation is required for the tallest wall section.

#### C. Soldier Pile Wall Construction Plan

Submit 4 copies and a PDF copy of a soldier pile wall construction plan at least 30 days before the preconstruction meeting. Do not begin soldier pile wall construction until the construction plan submittal is accepted. Provide project specific information in the soldier pile wall construction plan including a detailed construction sequence. For driven piles, submit proposed pile driving methods and equipment in accordance with Subarticle 450-3(D)(2) of the *Standard Specifications*. For drilled-in piles, submit installation details including drilling equipment and methods for stabilizing and filling holes. Provide details in the construction plan of excavations including temporary support and any other information shown in the plans or requested by the Engineer.

If alternate construction procedures are proposed or necessary, a revised soldier pile wall construction plan submittal may be required. If the work deviates from the accepted submittal without prior approval, the Engineer may suspend soldier pile wall construction until a revised plan is accepted.

#### D. Preconstruction Meeting

Before starting soldier pile wall construction, hold a preconstruction meeting to discuss the construction and inspection of the soldier pile walls. Schedule this meeting after all soldier pile wall submittals have been accepted. The Resident or Bridge Maintenance Engineer, Bridge Construction Engineer, Geotechnical Operations Engineer, Contractor and Cantilever Wall Contractor Superintendent will attend this preconstruction meeting.

### 4.0 CONSTRUCTION METHODS

Control drainage during construction in the vicinity of soldier pile walls. Direct run off away from soldier pile walls and areas above and behind walls. Contain and maintain No. 57 stone and backfill and protect material from erosion.

Notify the Engineer before blasting in the vicinity of soldier pile walls. Perform blasting in accordance with the contract. Unless required otherwise in the plans, install foundations located behind soldier pile walls before beginning wall construction if the horizontal distance to the closest foundation is less than the height of the tallest wall section.

Install soldier pile walls in accordance with the accepted submittals and as directed. Do not excavate behind soldier pile walls unless a temporary slope is shown in the accepted submittals. If overexcavation occurs and is not approved, repair walls with an approved method and a revised soldier pile wall design or construction plan may be required.

#### A. Piles

If a temporary slope is shown in the accepted submittals, excavate the slope before installing piles. Otherwise, install piles before excavating for soldier pile walls. Weld stud shear connectors to piles in accordance with Article 1072-6 of the *Standard Specifications*.

Install piles within 1" of horizontal and vertical alignment shown in the accepted submittals and with no negative batter (piles leaning forward). Minimize alignment variations between piles for soldier pile walls with concrete facing since variations can result in thicker concrete facing in some locations in order to provide the minimum required facing thickness elsewhere. Locate piles so the minimum required concrete facing thickness, if applicable, and roadway clearances are maintained for variable pile alignments.

Install piles with the minimum required embedment in accordance with Subarticles 450-3(D) and 450-3(E) of the *Standard Specifications*. Piles may be installed with a vibratory hammer as approved by the Engineer. Do not splice piles. If necessary, cut off piles at elevations shown in the accepted submittals along a plane normal to the pile axis.

Use pile excavation to install drilled-in piles. If overexcavation occurs, fill to required elevations with No. 57 stone before setting piles. After filling holes with concrete or grout to the elevations shown in the accepted submittals, remove any fluids and fill remaining portions of holes with flowable fill. Cure concrete or grout at least 7 days before excavating.

Notify the Engineer if refusal is reached before pile excavation or driven piles attain the minimum required embedment. When this occurs, a revised soldier pile wall design or construction plan submittal may be required.

#### B. Excavation

If a temporary slope is shown in the accepted submittals, excavate the slope as shown. Otherwise, excavate in front of piles from the top down in accordance with the accepted submittals. Excavate in staged horizontal lifts with a maximum height of 5 ft. Use timber lagging or an alternate approved method for temporary support of excavations in accordance with the accepted submittals.



Install temporary support within 24 hours of excavating each lift unless otherwise approved. The installation may be delayed if it can be demonstrated that delays will not adversely affect excavation stability. If excavation faces will be exposed for more than 24 hours, use polyethylene sheets anchored at top and bottom of lifts to protect excavation faces from changes in moisture content.

If an excavation becomes unstable at any time, suspend soldier pile wall construction and temporarily stabilize the excavation by immediately placing an earth berm up against the unstable excavation face. When this occurs, repair walls with an approved method and a revised soldier pile wall design or construction plan may be required.

Remove flowable fill and material in between piles as necessary to install timber lagging. Position lagging with at least 3" of contact in the horizontal direction between the lagging and pile flanges. Do not excavate the next lift until temporary support for the current lift is accepted.

#### C. Wall Drainage Systems

Install wall drainage systems as shown in the accepted submittals and in accordance with Section 816 of the *Standard Specifications*. Place geocomposite drain strips with the geotextile side facing away from wall faces. Secure drain strips so strips are in continuous contact with surfaces to which they are attached and allow for full flow the entire height of soldier pile walls. Discontinuous drain strips are not allowed. If splices are needed, overlap drain strips at least 12" so flow is not impeded. Connect drain strips to leveling pads by embedding strip ends at least 4" into No. 57 stone.

#### D. Leveling Pads, Panels, Coping and Concrete Facing

Construct aggregate leveling pads at elevations and with dimensions shown in the accepted submittals. Compact leveling pads with a vibratory compactor to the satisfaction of the Engineer.

Set panels against pile flanges as shown in the accepted submittals. Position panels with at least 2" of contact in the horizontal direction between the panels and pile flanges. If contact cannot be maintained, remove panels, fill gaps with joint filler and reset panels. Securely support panels until enough No. 57 stone or backfill is placed to hold panels in place.

Construct coping as shown in the accepted submittals and Subarticle 452-3(C) of the *Standard Specifications*. When single faced precast concrete barrier is required in front of and against soldier pile walls, stop coping just above barrier so coping does not interfere with placing barrier up against wall faces.

Construct concrete facing in accordance with the accepted submittals and Section 420 of the *Standard Specifications*. Do not remove forms until concrete attains a compressive strength of at least 2,400 psi. Unless required otherwise in the plans, provide a Class 2 surface finish for concrete facing that meets Subarticle 420-17(F) of the *Standard Specifications*. Construct concrete facing joints at a spacing of 10 ft to 12

ft unless required otherwise in the plans. Make 1/2" thick expansion joints that meet Article 420-10 of the *Standard Specifications* for every third joint and 1/2" deep grooved contraction or sawed joints that meet Subarticle 825-10(B) or 825-10(E) respectively for the remaining joints. Stop reinforcing steel for concrete facing 2" on either side of expansion joints.

If a brick veneer is required, construct brick masonry in accordance with Section 830 of the *Standard Specifications*. Anchor brick veneers to soldier pile walls with approved brick to concrete type anchors in accordance with the manufacturer's instructions. Space anchors no more than 16" apart in the vertical direction and no more than 32" apart in the horizontal direction with each row of anchors staggered 16" from the row above and below.

Seal joints above and behind soldier pile walls between coping or concrete facing and concrete slope protection with silicone sealant.

#### E. Backfill

For fill sections or if a temporary slope is shown in the accepted submittals, backfill behind piles, panels and concrete facing in accordance with Article 410-8 of the *Standard Specifications*. Otherwise, backfill voids behind panels, lagging and piles with No. 57 stone as shown in the accepted submittals. Ensure all voids between panels and lagging and between piles, lagging and excavation faces are filled with No. 57 stone. Compact stone to the satisfaction of the Engineer. When separation geotextiles are required, overlap adjacent geotextiles at least 18" and hold separation geotextiles in place with wire staples or anchor pins as needed.

#### F. Pile Coatings

For soldier pile walls with panels, clean exposed galvanized or painted surfaces of piles with a 2,500 psi pressure washer after wall construction is complete. Repair galvanized surfaces that are exposed and damaged in accordance with Article 1076-7 of the *Standard Specifications*. Repair painted surfaces that are exposed and damaged by applying 4.0 to 7.0 mils wet film thickness of a topcoat to damaged areas with brushes or rollers. Use the same paint for damaged areas that was used for the topcoat when painting piles initially. Feather or taper topcoats in damaged areas to be level with surrounding areas.

### 5.0 MEASUREMENT AND PAYMENT

*Soldier Pile Retaining Walls* will be measured and paid in square feet. Soldier pile walls will be measured as the square feet of exposed wall face area with the height equal to the difference between top and bottom of wall elevations. Define "top of wall" as top of coping or top of panels or concrete facing for soldier pile walls without coping. Define "bottom of wall" as shown in the plans and no measurement will be made for portions of soldier pile walls embedded below bottom of wall elevations.

The contract unit price for *Soldier Pile Retaining Walls* will be full compensation for

providing designs, submittals, labor, tools, equipment and soldier pile wall materials, installing piles, excavating, backfilling, hauling and removing excavated materials and supplying temporary support of excavations, wall drainage systems, leveling pads, panels, concrete facing, No. 57 stone, geotextiles and any incidentals necessary to construct soldier pile walls. The contract unit price for *Soldier Pile Retaining Walls* will also be full compensation for coping, pile coatings and brick veneers, if required. No additional payment will be made and no extension of completion date or time will be allowed for repairing overexcavations or unstable excavations or thicker concrete facing.

The contract unit price for *Soldier Pile Retaining Walls* does not include the cost for ditches, fences, handrails, barrier or guardrail associated with soldier pile walls as these items will be paid for elsewhere in the contract.

Where it is necessary to provide backfill material behind soldier pile walls from sources other than excavated areas or borrow sources used in connection with other work in the contract, payment for furnishing and hauling such backfill material will be paid as extra work in accordance with Article 104-7 of the *Standard Specifications*. Placing and compacting such backfill material is not considered extra work but is incidental to the work being performed.

Payment will be made under:

**Pay Item**

Soldier Pile Retaining Walls

**Pay Unit**

Square Foot

## **PILE DRIVING CRITERIA**

**(9-18-12)**

Revise the *2012 Standard Specifications* as follows:

**Page 4-72, Subarticle 450-3(D)(3) Required Driving Resistance, lines 26-30**, delete first paragraph and replace with the following:

The Engineer will determine if the proposed pile driving methods and equipment are acceptable and provide the blows/ft and equivalent set for the required driving resistance noted in the plans, i.e., “pile driving criteria” except for structures with pile driving analyzer (PDA) testing. For structures with PDA testing, provide pile driving criteria for any bents and end bents with piles in accordance with Subarticle 450-3(F)(4).

**Page 4-73, Subarticle 450-3(F) Pile Driving Analyzer, lines 45-48**, delete third paragraph and replace with the following:

The Engineer will complete the review of the proposed pile driving methods and equipment within 7 days of receiving PDA reports and pile driving criteria. Do not place concrete for caps or footings on piles until PDA reports and pile driving criteria have been accepted.

**Page 4-75, Subarticle 450-3(F) Pile Driving Analyzer**, add the following:

**(4) Pile Driving Criteria**

Analyze pile driving with the GRL Wave Equation Analysis Program (GRLWEAP) manufactured by Pile Dynamics, Inc. Use the same PDA Consultant that provides PDA reports to perform GRLWEAP analyses and develop pile driving criteria. Provide driving criteria sealed by an engineer approved as a Project Engineer (key person) for the same PDA Consultant.

Analyze pile driving so driving stresses, energy transfer, ram stroke and blows/ft from PDA testing and resistances from CAPWAP analyses correlate to GRLWEAP models. Provide pile driving criteria for each combination of required driving resistance and pile length installed for all pile types and sizes. Submit 2 copies of pile driving criteria with PDA reports. Include the following for driving criteria:

- (a) Project information in accordance with Subarticle 450-3(F)(3)(a)
- (b) Table showing blows/ft and equivalent set vs. either stroke for multiple strokes in increments of 6" or bounce chamber pressure for multiple pressures in increments of 1 psi
- (c) Maximum stroke or blows/ft or pile cushion requirements to prevent overstressing piles as needed
- (d) GRLWEAP software version information
- (e) PDF copy of all pile driving criteria and executable GRLWEAP input and output files

**Page 4-76, Article 450-4 MEASUREMENT AND PAYMENT**, add the following:

The contract unit price for *PDA Testing* will also be full compensation for performing GRLWEAP analysis and developing and providing pile driving criteria.

**1.0 GENERAL**

Construct cast-in-place (CIP) gravity retaining walls consisting of CIP concrete supported by and connected to concrete footings. Construct CIP gravity retaining walls based on actual elevations and wall dimensions in accordance with the contract, accepted submittals and if included in the plans, Standard Drawing No. 453.01. Define “CIP gravity wall” as a CIP gravity retaining wall.

**2.0 MATERIALS**

Refer to Division 10 of the *Standard Specifications*.

<b>Item</b>	<b>Section</b>
Curing Agents	1026
Geotextiles, Type 1	1056
Joint Materials	1028
Masonry	1040
Portland Cement Concrete, Class A	1000
Reinforcing Steel	1070
Subdrain Coarse Aggregate	1044-2
Subdrain Fine Aggregate	1044-1

Use geotextiles and subdrain aggregate for subsurface drainage at weep holes and reinforcing steel for dowels.

**3.0 CIP GRAVITY WALL SURVEYS**

The plans typically show a plan view, typical sections, details, notes and an elevation or profile view (wall envelope) for each CIP gravity wall. Before beginning CIP gravity wall construction, survey existing ground elevations along wall face locations and other elevations in the vicinity of CIP gravity wall locations as needed. Based on these elevations, finished grades and actual CIP gravity wall dimensions and details, submit wall envelopes for acceptance. Use accepted wall envelopes for construction.

**4.0 CONSTRUCTION METHODS**

Control drainage during construction in the vicinity of CIP gravity walls. Direct run off away from CIP gravity walls and backfill. Contain and maintain backfill and protect material from erosion.

Excavate as necessary for CIP gravity walls in accordance with the plans. Unless required otherwise in the plans, embed bottom of footings at least 2 ft below bottom of walls shown in the plans. If applicable and at the Contractor's option, use temporary shoring for wall construction instead of temporary slopes to construct CIP gravity walls. Define “temporary shoring for wall construction” as temporary shoring not shown in the plans or required by the Engineer including shoring for OSHA reasons or the Contractor's convenience.

Notify the Engineer when foundation excavation is complete. Do not place concrete for footings until excavation depth and foundation material are approved.

Construct CIP gravity walls at elevations and with dimensions shown in the plans and in accordance with Section 420 of the *Standard Specifications*. Use dowels for construction joints at top of footings as shown in the plans. Extend top of walls at least 6" above where finished grade intersects back of CIP gravity walls.

Unless required otherwise in the plans, provide a Class 2 surface finish for exposed surfaces of CIP gravity walls that meets Subarticle 420-17(F) of the *Standard Specifications*. Construct wall joints at a spacing of 10 ft to 12 ft unless required otherwise in the plans. Make 1/2" thick expansion joints that meet Article 420-10 of the *Standard Specifications* for every third joint and 1/2" deep grooved contraction or sawed joints that meet Subarticle 825-10(B) or 825-10(E) respectively of the *Standard Specifications* for the remaining joints.

Construct 3" diameter weep holes on 10 ft centers along CIP gravity walls. Provide subsurface drainage at weep holes in accordance with Article 414-8 of the *Standard Specifications*. Exit weep holes just above finished grade and slope holes at 1" per foot through CIP gravity walls so water drains out of front of walls. When single faced precast concrete barrier is required in front of and against CIP gravity walls, extend weep holes through barrier at the same slope.

Do not remove forms or backfill behind CIP gravity walls until concrete attains a compressive strength of at least 2,400 psi. Backfill for CIP gravity walls in accordance with Article 410-8 of the *Standard Specifications*.

If a brick veneer is required, construct brick masonry in accordance with Section 830 of the *Standard Specifications*. Anchor brick veneers to CIP gravity walls with approved brick to concrete type anchors in accordance with the manufacturer's instructions. Space anchors no more than 16" apart in the vertical direction and no more than 32" apart in the horizontal direction with each row of anchors staggered 16" from the row above and below.

## **5.0 MEASUREMENT AND PAYMENT**

*CIP Gravity Retaining Walls* will be measured and paid in square feet. CIP gravity walls will be measured as the square feet of exposed wall face area with the height equal to the difference between top and bottom of wall elevations. Define "top of wall" as top of CIP concrete. Define "bottom of wall" as shown in the plans and no measurement will be made for portions of CIP gravity walls embedded below bottom of wall elevations.

The contract unit price for *CIP Gravity Retaining Walls* will be full compensation for providing submittals, labor, tools, equipment and CIP gravity wall materials, excavating, backfilling, hauling and removing excavated materials and supplying concrete, dowels, subsurface drainage, weep holes and any incidentals necessary to construct CIP gravity walls. The contract unit price for *CIP Gravity Retaining Walls* will also be full compensation for brick veneers, if required.

No separate payment will be made for temporary shoring for wall construction. Temporary shoring for wall construction will be incidental to the contract unit price for *CIP Gravity Retaining Walls*.

The contract unit price for *CIP Gravity Retaining Walls* does not include the cost for ditches, fences, handrails, barrier or guardrail associated with CIP gravity walls as these items will be paid for elsewhere in the contract.

Where it is necessary to provide backfill material from sources other than excavated areas or borrow sources used in connection with other work in the contract, payment for furnishing and hauling such backfill material will be paid as extra work in accordance with Article 104-7 of the *Standard Specifications*. Placing and compacting such backfill material is not considered extra work but is incidental to the work being performed.

Payment will be made under:

**Pay Item**

CIP Gravity Retaining Walls

**Pay Unit**

Square Foot

## **SEGMENTAL GRAVITY RETAINING WALLS**

**(11-19-13)**

### **1.0 GENERAL**

Construct segmental gravity retaining walls consisting of segmental retaining wall (SRW) units supported by aggregate footings. Provide cast-in-place concrete slope protection as required. If the plans do not include Standard Drawing No. 453.02 or 453.03, design and construct segmental gravity retaining walls based on actual elevations, wall dimensions and batter in accordance with the contract and accepted submittals. Otherwise, construct segmental gravity retaining walls based on actual elevations, wall dimensions and batter in accordance with the contract, accepted submittals and Standard Drawing No. 453.02 or 453.03.

Define “block wall” as a segmental gravity retaining wall and “standard block wall” as a block wall that meets a standard segmental gravity retaining wall drawing (Standard Drawing No. 453.02 or 453.03). Define “blocks” as SRW units, “cap blocks” as SRW cap units and “Block Vendor” as the vendor licensing the block producer. Define “slope protection” as cast-in-place concrete slope protection.

### **2.0 MATERIALS**

Refer to the *Standard Specifications*.

<b>Item</b>	<b>Section</b>
Anchor Pins	1056-2
Curing Agents	1026
Geotextiles, Type 2	1056
Joint Filler	1028-1
Portland Cement Concrete, Class B	1000
Segmental Retaining Wall Units	1040-4
Select Material, Class VI	1016
Subsurface Drainage Materials	815-2
Wire Staples	1060-8(D)

Provide Type 2 geotextile for separation geotextiles. Use Class VI select material for No. 57 stone and Class B concrete for slope protection. Provide PVC pipes, fittings, outlet pipes and concrete pads for subsurface drainage materials. For PVC pipes behind block walls, use pipes with perforations that meet AASHTO M 278.

Use blocks from producers approved by the Department and licensed by the Block Vendor. Notify the Engineer of the name and NCDOT ID number of the SRW unit production facility before beginning block production. Unless required otherwise in the plans, provide blocks with a depth (front to back) of at least 12" and cap blocks with a depth of at least 8".

Use approved SRW units for standard block walls. Blocks for standard block walls are approved for either 2 ft or 4 ft maximum design heights with the design height as shown in Standard Drawing No. 453.02 or 453.03. The list of approved SRW units with maximum design heights is available from:



[connect.ncdot.gov/resources/Geological/Pages/Products.aspx](http://connect.ncdot.gov/resources/Geological/Pages/Products.aspx)

Do not mix blocks from different Block Vendors on the same block wall. Damaged blocks with excessive discoloration, chips or cracks as determined by the Engineer will be rejected.

Provide adhesives recommended by the Block Vendor. Store adhesives in accordance with the manufacturer's instructions. Load, transport, unload and store block wall materials so materials are kept clean and free of damage.

### **3.0 PRECONSTRUCTION REQUIREMENTS**

#### **A. Block Wall Surveys**

The plans typically show a plan view, typical sections, details, notes and an elevation or profile view (wall envelope) for each block wall. Before beginning block wall design or construction, survey existing ground elevations along wall face locations and other elevations in the vicinity of block wall locations as needed. Based on these elevations, finished grades and actual block wall dimensions, details and batter, submit wall envelopes for acceptance. Use accepted wall envelopes for design, if required, and construction.

#### **B. Block Wall Designs**

If the plans do not include Standard Drawing No. 453.02 or 453.03, submit 11 copies of working drawings and 3 copies of design calculations and a PDF copy of each for block wall designs at least 30 days before starting block wall construction. Do not begin block wall construction until a design submittal is accepted.

Design block walls in accordance with the plans and Article 11.11 of the *AASHTO LRFD Bridge Design Specifications* unless otherwise required. Design block walls for the wall batter required by the Block Vendor and clearances shown in the plans. Do not locate blocks or footings outside right-of-way or easement limits.

Use No. 57 stone for aggregate footings beneath blocks. Use 10" thick footings that are continuous at steps and extend at least 6" in front of and at least 9" behind bottom row of blocks. Unless required otherwise in the plans, embed bottom of footings at least 18" below bottom of walls shown in the plans. When noted in the plans, locate a 4" diameter continuous perforated PVC drain pipe in the No. 57 stone in back of footings.

Fill block core spaces with No. 57 stone and between and behind blocks with No. 57 stone for a horizontal distance of at least 12" so stone is continuous in all directions. Assume a unit weight of 100 lb/cf for No. 57 stone. Separation geotextiles are required between No. 57 stone and backfill or natural ground and between stone and overlying fill or pavement section except when concrete pavement, full depth asphalt or cement treated base is placed directly on stone.

Use cap blocks at top of walls. Step top of walls as shown in the plans and double

stack cap blocks at steps so cap blocks are continuous at steps. Extend top of walls 4" to 12" above where finished grade intersects back of blocks or cap blocks. When single faced precast concrete barrier is required in front of and against block walls, fill voids between barrier and wall faces with No. 57 stone.

Submit working drawings and design calculations for acceptance in accordance with Article 105-2 of the *Standard Specifications*. Submit working drawings showing plan views, wall profiles with required resistances, typical sections, No. 57 stone and geotextile locations and details of footings, blocks, cap blocks, etc. If necessary, include details on working drawings for slope protection and obstructions extending through walls or interfering with footings. Submit design calculations for each wall section with different geometry or material parameters. When designing block walls with computer software, a hand calculation is required for the tallest wall section. Provide block wall designs sealed by an engineer licensed in the state of North Carolina.

#### **4.0 CONSTRUCTION METHODS**

Control drainage during construction in the vicinity of block walls. Direct run off away from block walls, No. 57 stone and backfill. Contain and maintain stone and backfill and protect material from erosion.

Excavate as necessary for block walls in accordance with the plans and accepted submittals. Notify the Engineer when foundation excavation is complete. Do not place No. 57 stone for footings until excavation dimensions and foundation material are approved.

Construct aggregate footings at elevations and with dimensions shown in the plans and accepted submittals. If a drain is required, install wall drainage systems consisting of drains and outlet components as shown in the plans and accepted submittals and in accordance with Section 815 of the *Standard Specifications*. Compact No. 57 stone for footings with a vibratory compactor to the satisfaction of the Engineer.

Stack blocks with no negative wall batter (wall face leaning forward) so the final wall position is as shown in the plans and accepted submittals. Place blocks with a maximum vertical joint width of 3/8". Stagger blocks to create a running bond by centering blocks over joints in the row below as shown in the plans and accepted submittals. Construct block walls with the following tolerances:

- A. Blocks are level from front to back and between blocks when checked with a 3 ft long level,
- B. Final wall face is within 2" of horizontal and vertical alignment shown in the plans and accepted submittals, and
- C. Wall batter is within 2° of batter required by the Block Vendor.

Overlap adjacent separation geotextiles at least 18" at seams and hold geotextiles in place

with wire staples or anchor pins as needed. Place No. 57 stone between and behind blocks in 8" to 10" thick lifts. Compact stone with hand operated compaction equipment to the satisfaction of the Engineer. Backfill for block walls behind No. 57 stone in accordance with Article 410-8 of the *Standard Specifications*.

Set cap blocks with a 1/2" to 1-1/2" overhang as shown in the plans and accepted submittals. Place cap blocks using adhesive in accordance with the manufacturer's instructions. Do not place cap blocks if surfaces caps will be attached to are wet or frozen or the air temperature measured at the wall location in the shade away from artificial heat is below 40°F. Before applying adhesive, clean surfaces cap blocks will adhere to and ensure surfaces are dry and free of oil, grease, dust and debris.

Pave slopes above and behind block walls with slope protection as shown in the plans and accepted submittals and in accordance with Article 462-3 of the *Standard Specifications*. Construct slope protection joints at a spacing of 10 ft. Make 1/2" thick expansion joints that meet Article 420-10 of the *Standard Specifications* for every third joint and 1/2" deep grooved contraction joints that meet Subarticle 825-10(B) for the remaining joints.

## **5.0 MEASUREMENT AND PAYMENT**

*Segmental Gravity Retaining Walls* will be measured and paid in square feet. Block walls will be measured as the square feet of exposed wall face area with the height equal to the difference between top and bottom of wall elevations. Define "top of wall" as top of cap blocks. Define "bottom of wall" as shown in the plans and no measurement will be made for portions of block walls embedded below bottom of wall elevations.

The contract unit price for *Segmental Gravity Retaining Walls* will be full compensation for providing designs, if required, submittals, labor, tools, equipment and block wall materials, excavating, backfilling, hauling and removing excavated materials and supplying footings, blocks, No. 57 stone, wall drainage systems, geotextiles, cap blocks, slope protection and any incidentals necessary to construct block walls.

The contract unit price for *Segmental Gravity Retaining Walls* does not include the cost for ditches, fences, handrails, barrier or guardrail associated with block walls as these items will be paid for elsewhere in the contract.

Where it is necessary to provide backfill material behind No. 57 stone from sources other than excavated areas or borrow sources used in connection with other work in the contract, payment for furnishing and hauling such backfill material will be paid as extra work in accordance with Article 104-7 of the *Standard Specifications*. Placing and compacting such backfill material is not considered extra work but is incidental to the work being performed.

Payment will be made under:

**Pay Item**  
Segmental Gravity Retaining Walls

**Pay Unit**  
Square Foot

## **PRECAST GRAVITY RETAINING WALLS**

**(11-19-13)**

### **1.0 GENERAL**

Construct precast gravity retaining walls consisting of precast retaining wall (PRW) units supported by concrete footings. Provide cast-in-place concrete slope protection as required. Design and construct precast gravity retaining walls based on actual elevations, wall dimensions and batter in accordance with the contract and accepted submittals. Define “precast gravity wall” as a precast gravity retaining wall and “PRW Unit Vendor” as the vendor licensing the precaster. Define “slope protection” as cast-in-place concrete slope protection.

### **2.0 MATERIALS**

Refer to the *Standard Specifications*.

<b>Item</b>	<b>Section</b>
Anchor Pins	1056-2
Curing Agents	1026
Geotextiles, Type 2	1056
Joint Filler	1028-1
Portland Cement Concrete	1000
Precast Retaining Wall Units	1077
Select Material, Class VI	1016
Subsurface Drainage Materials	815-2
Wire Staples	1060-8(D)

Provide Type 2 geotextile for separation geotextiles. Use Class A concrete for footings, Class B concrete for slope protection and Class VI select material for No. 57 stone. Provide PVC pipes, fittings, outlet pipes and concrete pads for subsurface drainage materials. For PVC pipes behind precast gravity walls, use pipes with perforations that meet AASHTO M 278.

Use PRW units from producers approved by the Department and licensed by the PRW Unit Vendor. Produce PRW units with a final finish that meets Article 1077-11 of the *Standard Specifications* except for unit faces. Unless required otherwise in the plans, provide PRW units with a vertical rock like face and a concrete gray color with no tints, dyes or pigments. Do not begin unit production until sample PRW units of the type, face and color proposed for the project are approved.

Do not mix PRW units from different PRW Unit Vendors on the same precast gravity wall. Damaged PRW units with excessive discoloration, chips or cracks as determined by the Engineer will be rejected. Load, transport, unload and store precast gravity wall materials so materials are kept clean and free of damage.

### **3.0 PRECONSTRUCTION REQUIREMENTS**

#### **A. Precast Gravity Wall Surveys**

The Retaining Wall Plans show a plan view, typical sections, details, notes and an elevation or profile view (wall envelope) for each precast gravity wall. Before beginning precast gravity wall design, survey existing ground elevations shown in the plans and other elevations in the vicinity of precast gravity wall locations as needed. Based on these elevations, finished grades and actual precast gravity wall dimensions, details and batter, submit revised wall envelopes for acceptance. Use accepted wall envelopes for design.

#### B. Precast Gravity Wall Designs

Submit 11 copies of working drawings and 3 copies of design calculations and a PDF copy of each for precast gravity wall designs at least 30 days before the preconstruction meeting. Note name and NCDOT ID number of the PRW unit production facility on the working drawings. Do not begin precast gravity wall construction until a design submittal is accepted.

Design precast gravity walls in accordance with the plans and Article 11.11 of the *AASHTO LRFD Bridge Design Specifications* unless otherwise required. Design precast gravity walls for seismic if walls are located in seismic zone 2 based on Figure 2-1 of the *Structure Design Manual*. Design precast gravity walls for the wall batter required by the PRW Unit Vendor and clearances shown in the plans. Do not locate PRW units or footings outside right-of-way or easement limits.

When noted in the plans, design precast gravity walls for a live load (traffic) surcharge of 250 lb/sf in accordance with Figure C11.5.6-3(a) of the AASHTO LRFD specifications. For steel beam guardrail with 8 ft posts above precast gravity walls, analyze walls for a horizontal load ( $P_{H1}$ ) of 300 lb/ft of wall in accordance with Figure 3.11.6.3-2(a) of the AASHTO LRFD specifications. For concrete barrier rail above precast gravity walls, analyze walls for a  $P_{H1}$  of 500 lb/ft of wall in accordance with Figure 3.11.6.3-2(a).

Use 12" thick cast-in-place unreinforced concrete footings beneath PRW units that are continuous at steps and extend at least 6" in front of and behind bottom row of PRW units. Unless required otherwise in the plans, embed bottom of footings at least 2 ft below bottom of walls shown in the plans.

Fill PRW unit core spaces with No. 57 stone and between and behind units with No. 57 stone for a horizontal distance of at least 18" so stone is continuous in all directions. For adjacent PRW units with different depths (front to back), it may be necessary to fill behind units with more than 18" of No. 57 stone to make stone continuous. Assume a unit weight of 100 lb/cf for No. 57 stone.

When noted in the plans, locate a 4" diameter continuous perforated PVC drain pipe in the No. 57 stone behind bottom row of PRW units. Separation geotextiles are required between No. 57 stone and backfill or natural ground and between stone and overlying fill or pavement section except when concrete pavement, full depth asphalt or cement treated base is placed directly on stone.

At the Contractor's option, use cap or top PRW units at top of walls unless there is a back slope or concrete barrier rail above precast gravity walls. For precast gravity walls with back slopes, use top PRW units only and extend top of walls at least 4" above where finished grade intersects top PRW units. When concrete barrier rail is required above precast gravity walls, use concrete barrier rail with moment slab as shown in the plans and do not use cap PRW units. When single faced precast concrete barrier is required in front of and against precast gravity walls, fill voids between barrier and wall faces with No. 57 stone.

Submit working drawings and design calculations for acceptance in accordance with Article 105-2 of the *Standard Specifications*. Submit working drawings showing plan views, wall profiles with required resistances, typical sections, No. 57 stone and geotextile locations and details of footings, PRW units, etc. If necessary, include details on working drawings for slope protection, concrete barrier rail with moment slab and obstructions extending through walls or interfering with footings, barriers or moment slabs. Submit design calculations for each wall section with different surcharge loads, geometry or material parameters. When designing precast gravity walls with computer software, a hand calculation is required for the tallest wall section. Provide precast gravity wall designs sealed by an engineer licensed in the state of North Carolina.

#### C. Preconstruction Meeting

Before starting precast gravity wall construction, hold a preconstruction meeting to discuss the construction and inspection of the precast gravity walls. Schedule this meeting after all precast gravity wall submittals have been accepted. The Resident or Bridge Maintenance Engineer, Bridge Construction Engineer, Geotechnical Operations Engineer, Contractor and Precast Gravity Wall Installer Superintendent will attend this preconstruction meeting.

### 4.0 CONSTRUCTION METHODS

Control drainage during construction in the vicinity of precast gravity walls. Direct run off away from precast gravity walls, No. 57 stone and backfill. Contain and maintain stone and backfill and protect material from erosion.

Excavate as necessary for precast gravity walls in accordance with the accepted submittals. If applicable and at the Contractor's option, use temporary shoring for wall construction instead of temporary slopes to construct precast gravity walls. Define "temporary shoring for wall construction" as temporary shoring not shown in the plans or required by the Engineer including shoring for OSHA reasons or the Contractor's convenience.

Notify the Engineer when foundation excavation is complete. Do not place concrete for footings until excavation depth and foundation material are approved.

Construct cast-in-place concrete footings at elevations and with dimensions shown in the accepted submittals and in accordance with Section 420 of the *Standard Specifications*. Cure footings at least 24 hours before placing PRW units.

Stack PRW units with no negative wall batter (wall face leaning forward) so the final wall position is as shown in the accepted submittals. Place PRW units with a maximum vertical joint width of 1/2". Stagger PRW units to create a running bond by centering units over joints in the row below as shown in the accepted submittals. Construct precast gravity walls with the following tolerances:

- A. PRW units are level from front to back and between units when checked with a 3 ft long level,
- B. Wall face is within 2" of horizontal and vertical alignment shown in the accepted submittals when measured along a 10 ft straightedge unless otherwise approved, and
- C. Wall batter is within 2° of batter required by the PRW Unit Vendor.

Overlap adjacent separation geotextiles at least 18" at seams and hold geotextiles in place with wire staples or anchor pins as needed. If a drain is required, install wall drainage systems consisting of drains and outlet components as shown in the accepted submittals and in accordance with Section 815 of the *Standard Specifications*.

Place No. 57 stone between and behind PRW units in 8" to 10" thick lifts. Compact stone with hand operated compaction equipment to the satisfaction of the Engineer. Backfill for precast gravity walls behind No. 57 stone in accordance with Article 410-8 of the *Standard Specifications*. Set cap PRW units with a 1/2" to 1-1/2" overhang as shown in the plans.

Pave slopes above and behind precast gravity walls with slope protection as shown in the plans and accepted submittals and in accordance with Article 462-3 of the *Standard Specifications*. Construct slope protection joints at a spacing of 10 ft. Make 1/2" thick expansion joints that meet Article 420-10 of the *Standard Specifications* for every third joint and 1/2" deep grooved contraction joints that meet Subarticle 825-10(B) for the remaining joints.

## **5.0 MEASUREMENT AND PAYMENT**

*Precast Gravity Retaining Walls* will be measured and paid in square feet. Precast gravity walls will be measured as the square feet of exposed wall face area with the height equal to the difference between top and bottom of wall elevations. Define "top of wall" as top of cap or top PRW units. Define "bottom of wall" as shown in the plans and no measurement will be made for portions of precast gravity walls embedded below bottom of wall elevations.

The contract unit price for *Precast Gravity Retaining Walls* will be full compensation for providing design, submittals, labor, tools, equipment and precast gravity wall materials, excavating, backfilling, hauling and removing excavated materials and supplying footings, PRW units, No. 57 stone, wall drainage systems, geotextiles, cap and top PRW units, slope protection and any incidentals necessary to construct precast gravity walls.

No separate payment will be made for temporary shoring for wall construction. Temporary shoring for wall construction will be incidental to the contract unit price for *Precast*

*Gravity Retaining Walls.*

The contract unit price for *Precast Gravity Retaining Walls* does not include the cost for ditches, fences, handrails, barrier or guardrail associated with precast gravity walls as these items will be paid for elsewhere in the contract.

Where it is necessary to provide backfill material behind No. 57 stone from sources other than excavated areas or borrow sources used in connection with other work in the contract, payment for furnishing and hauling such backfill material will be paid as extra work in accordance with Article 104-7 of the *Standard Specifications*. Placing and compacting such backfill material is not considered extra work but is incidental to the work being performed.

Payment will be made under:

**Pay Item**

Precast Gravity Retaining Walls

**Pay Unit**

Square Foot



## **HELICAL ANCHORS**

### **PART 1 -- GENERAL**

#### **1.01 THE REQUIREMENT**

- A. The Contractor shall furnish and install all helical anchors including all necessary and incidental items as detailed or required for the Contractor to complete the installation in accordance with the Drawings and these Specifications.

#### **1.02 RELATED WORK SPECIFIED ELSEWHERE**

- A. Clearing, Grubbing, and Site Preparation
- B. Division 5, METALS
- C. Timber Boardwalk

#### **1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS**

- A. Without limiting the generality of the other requirements of the specifications, all work herein shall conform to the applicable requirements of the following documents.
  - 1. ASTM A29 Standard Specification for Steel Bars, Carbon and Alloy, Hot-Wrought and Cold Finished, General Requirements for
  - 2. ASTM A36 Standard Specification for Carbon Structural Steel
  - 3. ASTM A53 Standard Specification for Pipe, Steel, Black and Hot Dipped, Zinc Coated, Welded and Seamless
  - 4. ASTM A153 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
  - 5. ASTM A252 Standard Specification for Welded and Seamless Steel Pipe Piles
  - 6. ASTM A320 Standard Specification for Alloy Steel Bolting Materials for Low-Temperature Service
  - 7. ASTM A500 Standard Specification for Cold Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
  - 8. ASTM A512 Standard Specification for Cold-Drawn Buttweld Carbon Steel Mechanical Tubing
  - 9. ASTM A513 Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing
  - 10. ASTM A570 Standard Specification for Steel, Sheet and Strip, Carbon, Hot-Rolled, Structural Quality

11. ASTM A576 Standard Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality
12. ASTM A607 Standard Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Columbium or Vanadium, or Both, Hot-Rolled and Cold-Rolled
13. ASTM A618 Standard Specification for Hot Formed Welded and Seamless High Strength Low Alloy Structural Tubing
14. ASTM A656 Standard Specification for Hot-Rolled Structural Steel, High-Strength Low-Alloy Plate with Improved Formability

#### 1.04 SUBMITTALS

- A. Submit samples and/or shop drawings to the special provision "Submittal of Working Drawings" at least 21 calendar days prior to planned start of installation.
  1. Provide shop drawings for all brackets and connections.
  2. Provide evidence of certification of installer by the manufacturer.
  3. Provide installation torque of the helical anchor.
  4. Verification of the soil for adequacy of installation.
  5. Certification of welders.
- B. Submit design calculations sealed by an engineer licensed in North Carolina demonstrating the anchor's ability to resist the design loads shown on the plans.

### **PART 2 -- MATERIALS**

#### 2.01 LEAD SECTION

- A. The lead section of the helical anchor shall consist of circular steel plate or plates welded to a central steel shaft.
- B. The shaft shall be round cornered square solid steel bar.
- C. Round cornered square solid steel bar shall be formed of ASTM A29 steel with minimum yield and tensile strength of 70 and 100 ksi, respectively.
- D. Shaft shall have an earth penetrating pilot on the bottom of the shaft.
- E. Shaft shall have a coupler means on the top of the shaft, with a hole drilled perpendicular to the central axis near the end of the shaft to accommodate a bolted connection for a shaft extension or support bracket.

#### 2.02 HELIX

- A. Circular steel plate welded to the central steel shaft shall form the helix.

E

- B. Diameter of helix shall be determined by the helical designer so that one helical may be used to resist the design load at each installation location.
- C. The helical plate shall be center punched to accept the central steel shaft.
- D. Radial sections of the helix shall be normal to the central longitudinal axis  $\pm 3^\circ$ .
- D. Pitch of the helix shall be 3-inches to allow soil penetration of 3-inches per revolution.
- E. Thickness of helix plate shall be not less than  $\frac{3}{8}$ -inch.
- F. Helical plate shall be welded to the central shaft.
  - 1. Welding shall be performed by welders certified under AWS Code D1.1, Section 5.
- G. Helical plates shall be ASTM A570, A572, or A607, Grade 50 with a minimum yield strength of 50 ksi and a minimum tensile strength of 65 ksi.

## 2.03 SHAFT EXTENSION

- F. Extension (if necessary) shall be of the same material used in the lead section.
- G. Each extension shall have a coupler means on one end and a connection means on the other. The coupler shall be an integrally formed socket that slips over the end of central shaft of either the lead section or another extension.
- H. Each end of the extension shall have a hole drilled perpendicular to the central axis near the end of the shaft to accommodate a bolted connection for a lead section, shaft extension, or support bracket.

## 2.04 GUY ADAPTERS

- A. Guy adapters shall have an ultimate capacity of no less than 10,000 pounds.

## 2.05 COUPLING BOLTS

- A. Shaft extensions or support brackets shall be coupled to their companion members via a bolted connection.
- B. Bolts shall be a minimum  $\frac{3}{4}$ -inch diameter, ASTM A320, Grade L7.

## 2.06 GALVANIZING

- A. All components, including guy adapters and coupling bolts, shall be galvanized after fabrication.
- B. Galvanizing of helical plates shall be done following welding to the central shaft of the lead section or the extension such that the entire assembly is galvanized after fabrication.

## 2.07 MANUFACTURERS

- A. Helical anchors shall be the product of The A.B. Chance Company, Dixie Anchoring Systems, Magnum Piering, or approved equal.

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## 2.08 WIRE ROPE AND WIRE ROPE CLIPS

- A. Wire rope shall be 5/16" diameter, type 304 stainless steel, utilize a 7-19 strand pattern, and have a working load limit not less than 1,700 lbs.
- B. Wire rope clips shall be galvanized and installed in accordance with the manufacturer's specifications to provide an 80% termination efficiency.

## **PART 3 -- EXECUTION**

### 3.01 DESIGN CRITERIA

- A. Provide helical anchor to meet the following design criteria:
  - 1. Helical anchors shall be installed to resist the superimposed design loads as follows:

Length of Boardwalk Section	Uplift (kips)
10'	0.9
20'	1.4

- 2. The minimum depth from ground surface to top of helix shall be not less than 3 feet.
  - 3. Helical anchors shall be installed to a minimum installation torque of 3,000 ft-lbs.

### 3.02 INSTALLATION

- A. Install helical anchors to provide adequate uplift resistance to the boardwalk. Anchors shall be installed as directed by the engineer when the minimum pile penetrations shown on sheet SB-1 and SB-1A are not achieved. Anchors shall be installed using top down methods and should be placed as close as practical to the post cap centerline without causing damage to the boardwalk structure. Any materials damaged during the installation of the helical anchors shall be replaced at the contractor's expense.
- B. Install in undisturbed soil by mechanical rotation using a rotary motor capable of rotating either clockwise or counterclockwise and producing sufficient torque to adequately install the helical anchor in accordance with manufacturer's recommendations.
- C. Install helical anchor at a rate greater than 5 but less than 20 revolutions per minute.
- D. Add shaft extensions (if required) to provide required soil bearing with support bracket at the required elevation. Where shaft extensions are used, tighten coupling bolts to 40-foot pounds of torque.
- E. The torque applied shall be recorded in not less than 2-foot increments.
  - 1. The torque applied during installation of the final length shall be recorded.
  - 2. Helical anchors shall be numbered sequentially and referenced to the Drawings.
  - 3. Copies of installation logs shall be supplied to the Engineer on a daily basis during the installation of the helical anchors.

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F. For guy adapters, tighten coupling bolts to 40-foot pounds of torque.

G. Wire rope shall be tightened to the satisfaction of the Engineer.

**PART 4 – MEASUREMENT AND PAYMENT**

- A. Helical anchors shall be paid for at the contract price per each helical anchor. The price shall include all necessary and incidental items as detailed or required for the Contractor to complete the installation in accordance with the Drawings and these Specifications, including adapter, wire rope, and hardware.

Pay Item	Pay Unit
GENERIC STRUCTURE ITEM (EA)	EA
(HELICAL ANCHOR)	

- END OF SECTION -

## **RAILROAD CANOPY**

The contractor shall install the railroad canopy structure as shown in the plans.

The contractor shall ensure that no part of the canopy structure is less than 8 feet above the finished grade of the concrete greenway and that no part of the canopy structure is less than 3” from the low chord of the existing railroad bridge. The contractor shall make no contact with the existing railroad bridge structure during the construction of the canopy structure.

Concrete used in footings shall follow NCDOT Standard Specification 1000.

Steel used in the structure shall follow NCDOT Standard Specification 1072

Payment will be made at the contract unit price per lump sum for "Railroad Canopy". Such prices and payment will be considered full compensation for furnishing all concrete, steel, fittings, materials, tools, labor, and equipment needed to install the entire structure as shown in the plans.

Payment will be made under:

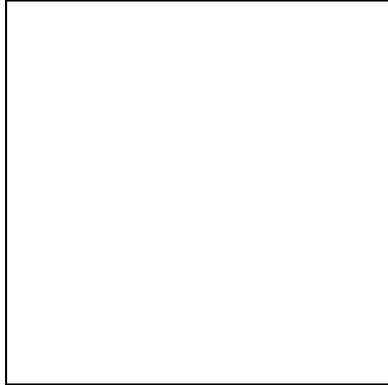
<b>Pay Item</b>	<b>Pay Unit</b>
Railroad Canopy	Lump Sum

## **RAILROAD COORDINATION**

The contractor shall coordinate his work in the Yadkin Valley Railroad (YVRR) right-of-way with railroad staff. The contractor must call the YVRR office at 336-969-6055 prior to working in the railroad right-of-way, and call the office at the beginning of each day they plan on working in the right-of-way, so that YVRR can record the work, and inform the contractor of train movements.

Contractor shall note the insurance requirements of the contract in regards to railroad insurance.

There shall be no separate payment for Railroad Coordination.



**Signals and Intelligent Transportation Systems  
Project Special Provisions  
(Version 12.4)**

*Prepared By: Kelly M. Cory, PE, PTOE  
3-Nov-14*

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**1. 2012 STANDARD SPECIFICATIONS FOR ROADS & STRUCTURES**

*The 2012 Standard Specifications are revised as follows:*

**1.1. Polymer Concrete (PC) Junction Boxes (1091-5(B))**

Page 10-202, revise paragraph starting on line 9 to read “Provide polymer concrete (PC) boxes which have bolted covers and open bottoms. Provide vertical extensions of 6" to 12" as required by project special provisions.”

Page 10-202, revise sentence beginning on line 14 to read “Other thermoplastic materials may be used for components which are not normally exposed to sunlight.”

**1.2. Submittal Requirements (1098-1(B))**

Page 10-208, replace paragraph on line 34 with the following:

Submit for approval catalog cuts and/or shop drawings for materials proposed for use on the project. Allow 40 days for review of each submittal. Do not fabricate or order material until receipt of Engineer’s approval.

Submit 4 copies of each catalog cut and/or drawing and show for each component the material description, brand name, stock-number, size, rating, manufacturing specification and the intended use (identified by labeling all components with the corresponding contract line item number). Present the submittals neatly arranged in the same order as the contract bid items. Electronic submittals of catalog cuts and drawings may be accepted in lieu of hard copies.

One hard copy and an electronic (PDF) copy of reviewed submittals will be returned to the Engineer from the ITS and Signals Unit.

**1.3. Junction Boxes (1098-5)**

Page 10-212, sub-Section 1098-5(C) Oversized Junction Boxes

Revise sentence to read, “Provide oversized junction boxes and covers with minimum inside dimensions of 28"(l) x 15"(w) x 22"(h).”

**1.4. Pedestals (1743)**

Page 17-34, Add the following new sub-Section:

**1743-4 - Screw-In Helical Foundation Anchor Assembly****Description:**

Furnish and install screw-in helical foundation as an alternative to the standard reinforced concrete foundation specified in Article 1743 “Pedestals” of the Standard Specifications, for supporting Type I and Type II Pedestals. Do not use for Type III Pedestals.

**Materials for Type I – Pedestrian Pushbutton Post:**

Fabricate pipe assembly consisting of a 4" diameter x 56" long pipe, single helical blade and square fixed attachment plate. Furnish pipe in accordance with ASTM A-53 ERW Grade B and include a 2" x 3" cable opening in the pipe at 18" below the attachment plate. Furnish steel attachment plate and helical blade in accordance with ASTM A-36. Include (4) slotted mounting holes in the attachment plate to fit bolt circles ranging from 7-3/4" to 14-3/4" diameter. Furnish additional 3/4" keyholes at slotted holes to permit anchor bolt installation and replacement from top surface. Include combination bolt-head retainer and dirt scrapers at the attachment plate underside to allow for a level or flush-mount plate installation with respect to the finished grade. Galvanize pipe assembly components in accordance with AASHTO M 111 or an approved equivalent.

Furnish (4) 3/4"-10NC x 3" square head anchor bolts to meet the requirements of ASTM 325. Provide (4) 3/4" plain flat galvanized washers, (4) 3/16" thick galvanized plate washers and (4) 3/4" galvanized hex nuts. Galvanize in accordance with AASHTO M 111 or an approved equivalent.

**Construction Methods for Type I – Pedestrian Pushbutton Post:**

Advance or mechanically screw foundation into soil up until top of attachment plate is level with finished grade. Slide the anchor bolt heads through the keyhole openings and under the attachment plate with threads pointing up. Bolt the pedestal base to the foundation attachment plate. For further construction methods, see manufacturer's installation drawings.

**Materials for Type II – Normal-Duty Pedestal:**

Fabricate pipe assembly consisting of a 6" diameter x 60" long, single helical blade, 1-1/4" diameter stinger rod and square fixed attachment plate. Furnish pipe in accordance with ASTM A-53 ERW Grade B using schedule 40 wall thickness and include a 2" x 3" cable opening in the pipe at 18" below the attachment plate. Furnish steel attachment plate, helical blade and stinger rod in accordance with ASTM A-36. Include (4) slotted mounting holes in the attachment plate to fit bolt circles ranging from 10" to 15" diameter. Furnish additional 1-1/4" keyholes at slotted holes to permit anchor bolt installation and replacement from top surface. Include combination bolt-head retainer and dirt scrapers at the attachment plate underside to allow for a level or flush-mount plate installation with respect to the finished grade. Galvanize pipe assembly components in accordance with AASHTO M 111 or an approved equivalent.

Furnish (4) 1"-8NC x 4" galvanized Grade 5 square head anchor bolts. Provide (4) 1" plain flat galvanized washers and (4) 1" galvanized hex nuts. Galvanize in accordance with AASHTO M 111 or an approved equivalent.

**Construction Methods for Type II – Normal-Duty Pedestal:**

Advance or mechanically screw foundation into soil up until top of attachment plate is level with finished grade. Slide the anchor bolt heads through the keyhole openings and under the attachment plate with threads pointing up. Bolt the pedestal base to the foundation attachment plate.

For further construction methods, see manufacturer's installation drawings.

Page 17-34, revise Measurement and Payment to sub-Section 1743-5.

Revise the last paragraph to read:

No measurement will be made for pedestal foundations, pedestal screw-in helical foundations, grounding systems and any peripheral pedestal mounting hardware as these are incidental to furnishing and installing pedestals.

## **2. SIGNAL HEADS**

### **2.1. MATERIALS**

#### **A. General:**

Fabricate vehicle signal head housings and end caps from die-cast aluminum. Fabricate 12-inch and 16-inch pedestrian signal head housings and end caps from die-cast aluminum. Fabricate 9-inch pedestrian signal head housings, end caps, and visors from virgin polycarbonate material. Provide visor mounting screws, door latches, and hinge pins fabricated from stainless steel. Provide interior screws, fasteners, and metal parts fabricated from stainless steel or corrosion resistant material.

Fabricate tunnel and traditional visors from sheet aluminum.

Paint all surfaces inside and outside of signal housings and doors. Paint outside surfaces of tunnel and traditional visors, messenger cable mounting assemblies, pole and pedestal mounting

assemblies, and pedestrian pushbutton housings. Have electrostatically-applied, fused-polyester paint in highway yellow (Federal Standard 595C, Color Chip Number 13538) a minimum of 2.5 to 3.5 mils thick. Do not apply paint to the latching hardware or rigid vehicle signal head mounting brackets for mast-arm attachments.

Have the interior surfaces of tunnel and traditional visors painted an alkyd urea black synthetic baking enamel with a minimum gloss reflectance and meeting the requirements of MIL-E-10169, "Enamel Heat Resisting, Instrument Black."

Where required, provide polycarbonate signal heads and visors that comply with the provisions pertaining to the aluminum signal heads listed on the QPL with the following exceptions:

Fabricate signal head housings, end caps, and visors from virgin polycarbonate material. Provide UV stabilized polycarbonate plastic with a minimum thickness of  $0.1 \pm 0.01$  inches that is highway yellow (Federal Standard 595C, Color Chip 13538). Ensure the color is incorporated into the plastic material before molding the signal head housings and end caps. Ensure the plastic formulation provides the following physical properties in the assembly (tests may be performed on separately molded specimens):

Test	Required	Method
Specific Gravity	1.17 minimum	ASTM D 792
Flammability	Self-extinguishing	ASTM D 635
Tensile Strength, yield, PSI	8500 minimum	ASTM D 638
Izod impact strength, ft-lb/in [notched, 1/8 inch]	12 minimum	ASTM D 256

For pole mounting, provide side of pole mounting assemblies with framework and all other hardware necessary to make complete, watertight connections of the signal heads to the poles and pedestals. Fabricate the mounting assemblies and frames from aluminum with all necessary hardware, screws, washers, etc. to be stainless steel. Provide mounting fittings that match the positive locking device on the signal head with the serrations integrally cast into the brackets. Provide upper and lower pole plates that have a 1 ¼-inch vertical conduit entrance hubs with the hubs capped on the lower plate and 1 ½-inch horizontal hubs. Ensure that the assemblies provide rigid attachments to poles and pedestals so as to allow no twisting or swaying of the signal heads. Ensure that all raceways are free of sharp edges and protrusions, and can accommodate a minimum of ten Number 14 AWG conductors.

For pedestal mounting, provide a post-top slipfitter mounting assembly that matches the positive locking device on the signal head with serrations integrally cast into the slipfitter. Provide stainless steel hardware, screws, washers, etc. Provide a minimum of six 3/8 X 3/4-inch long square head bolts for attachment to pedestal. Provide a center post for multi-way slipfitters.

For light emitting diode (LED) traffic signal modules, provide the following requirements for inclusion on the Department's Qualified Products List for traffic signal equipment.

1. Sample submittal,
2. Third-party independent laboratory testing results for each submitted module with evidence of testing and conformance with all of the Design Qualification Testing specified in section 6.4 of each of the following Institute of Transportation Engineers (ITE) specifications:
  - Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement

- Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement
- Pedestrian Traffic Control Signal Indications –Light Emitting Diode (LED) Signal Modules.

(Note: The Department currently recognizes two approved independent testing laboratories. They are Intertek ETL Semko and Light Metrics, Incorporated with Garwood Laboratories. Independent laboratory tests from other laboratories may be considered as part of the QPL submittal at the discretion of the Department,

3. Evidence of conformance with the requirements of these specifications,
4. A manufacturer's warranty statement in accordance with the required warranty, and
5. Submittal of manufacturer's design and production documentation for the model, including but not limited to, electrical schematics, electronic component values, proprietary part numbers, bill of materials, and production electrical and photometric test parameters.
6. Evidence of approval of the product to bear the Intertek ETL Verified product label for LED traffic signal modules.

In addition to meeting the performance requirements for the minimum period of 60 months, provide a written warranty against defects in materials and workmanship for the modules for a period of 60 months after installation of the modules. During the warranty period, the manufacturer must provide new replacement modules within 45 days of receipt of modules that have failed at no cost to the State. Repaired or refurbished modules may not be used to fulfill the manufacturer's warranty obligations. Provide manufacturer's warranty documentation to the Department during evaluation of product for inclusion on Qualified Products List (QPL).

#### **B. Vehicle Signal Heads:**

Comply with the ITE standard "Vehicle Traffic Control Signal Heads". Provide housings with provisions for attaching backplates.

Provide visors that are 8 inches in length for 8-inch vehicle signal head sections. Provide visors that are 10 inches in length for 12-inch vehicle signal heads.

Provide a termination block with one empty terminal for field wiring for each indication plus one empty terminal for the neutral conductor. Have all signal sections wired to the termination block. Provide barriers between the terminals that have terminal screws with a minimum Number 8 thread size and that will accommodate and secure spade lugs sized for a Number 10 terminal screw.

Mount termination blocks in the yellow signal head sections on all in-line vehicle signal heads. Mount the termination block in the red section on five-section vehicle signal heads.

Furnish vehicle signal head interconnecting brackets. Provide one-piece aluminum brackets less than 4.5 inches in height and with no threaded pipe connections. Provide hand holes on the bottom of the brackets to aid in installing wires to the signal heads. Lower brackets that carry no wires and are used only for connecting the bottom signal sections together may be flat in construction.

For messenger cable mounting, provide messenger cable hangers, wire outlet bodies, balance adjusters, bottom caps, wire entrance fitting brackets, and all other hardware necessary to make complete, watertight connections of the vehicle signal heads to the messenger cable. Fabricate mounting assemblies from malleable iron or steel and provide serrated rings made of aluminum.

Provide messenger cable hangers and balance adjusters that are galvanized before being painted. Fabricate balance adjuster eyebolt and eyebolt nut from stainless steel or galvanized malleable iron. Provide messenger cable hangers with U-bolt clamps. Fabricate washers, screws, bolts, clevis pins, cotter pins, nuts, and U-bolt clamps from stainless steel.

For mast-arm mounting, provide rigid vehicle signal head mounting brackets and all other hardware necessary to make complete, watertight connections of the vehicle signal heads to the mast arms and to provide a means for vertically adjusting the vehicle signal heads to proper alignment. Fabricate the mounting assemblies from aluminum, and provide serrated rings made of aluminum. Provide stainless steel cable attachment assemblies to secure the brackets to the mast arms. Ensure all fastening hardware and fasteners are fabricated from stainless steel.

Provide LED vehicular traffic signal modules (hereafter referred to as modules) that consist of an assembly that uses LEDs as the light source in lieu of an incandescent lamp for use in traffic signal sections. Use LEDs that are aluminum indium gallium phosphorus (AlInGaP) technology for red and yellow indications and indium gallium nitride (InGaN) for green indications. Install the ultra bright type LEDs that are rated for 100,000 hours of continuous operation from -40°F to +165°F. Design modules to have a minimum useful life of 60 months and to meet all parameters of this specification during this period of useful life.

For the modules, provide spade terminals crimped to the lead wires and sized for a #10 screw connection to the existing terminal block in a standard signal head. Do not provide other types of crimped terminals with a spade adapter.

Ensure the power supply is integral to the module assembly. On the back of the module, permanently mark the date of manufacture (month & year) or some other method of identifying date of manufacture.

Tint the red, yellow and green lenses to correspond with the wavelength (chromaticity) of the LED. Transparent tinting films are unacceptable. Provide a lens that is integral to the unit with a smooth outer surface.

### **1. LED Circular Signal Modules:**

Provide modules in the following configurations: 12-inch circular sections, and 8-inch circular sections. All makes and models of LED modules purchased for use on the State Highway System shall appear on the current NCDOT Traffic Signal Qualified Products List (QPL).

Provide the manufacturer's model number and the product number (assigned by the Department) for each module that appears on the 2012 or most recent Qualified Products List. In addition, provide manufacturer's certification in accordance with Article 106-3 of the *Standard Specifications*, that each module meets or exceeds the ITE "Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement" dated June 27, 2005 (hereafter referred to as VTCSH Circular Supplement) and other requirements stated in this specification.

Provide modules that meet the following requirements when tested under the procedures outlined in the VTCSH Circular Supplement:

Module Type	Max. Wattage at 165° F	Nominal Wattage at 77° F
12-inch red circular	17	11
8-inch red circular	13	8

12-inch green circular	15	15
8-inch green circular	12	12

For yellow circular signal modules, provide modules tested under the procedures outlined in the VTCSH Circular Supplement to insure power required at 77° F is 22 Watts or less for the 12-inch circular module and 13 Watts or less for the 8-inch circular module.

Note: Use a wattmeter having an accuracy of  $\pm 1\%$  to measure the nominal wattage and maximum wattage of a circular traffic signal module. Power may also be derived from voltage, current and power factor measurements.

### C. Pedestrian Signal Heads:

Provide pedestrian signal heads with international symbols that meet the MUTCD. Do not provide letter indications.

Comply with the ITE standard for “Pedestrian Traffic Control Signal Indications” and the following sections of the ITE standard for “Vehicle Traffic Control Signal Heads” in effect on the date of advertisement:

- Section 3.00 - “Physical and Mechanical Requirements”
- Section 4.01 - “Housing, Door, and Visor: General”
- Section 4.04 - “Housing, Door, and Visor: Materials and Fabrication”
- Section 7.00 - “Exterior Finish”

Provide a double-row termination block with three empty terminals and number 10 screws for field wiring. Provide barriers between the terminals that accommodate a spade lug sized for number 10 terminal screws. Mount the termination block in the hand section. Wire all signal sections to the terminal block.

Where required by the plans, provide 16-inch pedestrian signal heads with traditional three-sided, rectangular visors, 6 inches long. Where required by the plans, provide 12-inch pedestrian signal heads with traditional three-sided, rectangular visors, 8 inches long.

Provide 2-inch diameter pedestrian push-buttons with weather-tight housings fabricated from die-cast aluminum and threading in compliance with the NEC for rigid metal conduit. Provide a weep hole in the housing bottom and ensure that the unit is vandal resistant.

Provide push-button housings that are suitable for mounting on flat or curved surfaces and that will accept 1/2-inch conduit installed in the top. Provide units that have a heavy duty push-button assembly with a sturdy, momentary, normally-open switch. Have contacts that are electrically insulated from the housing and push-button. Ensure that the push-buttons are rated for a minimum of 5 mA at 24 volts DC and 250 mA at 12 volts AC.

Provide standard R10-3 signs with mounting hardware that comply with the MUTCD in effect on the date of advertisement. Provide R10-3E signs for countdown pedestrian heads and R10-3B for non-countdown pedestrian heads.

Design the LED pedestrian traffic signal modules (hereafter referred to as modules) for installation into standard pedestrian traffic signal sections that do not contain the incandescent signal section reflector, lens, eggcrate visor, gasket, or socket. Provide modules that consist of an assembly that uses LEDs as the light source in lieu of an incandescent lamp. Use LEDs that are of the latest

aluminum indium gallium phosphorus (AlInGaP) technology for the Portland Orange hand and countdown displays. Use LEDs that are of the latest indium gallium nitride (InGaN) technology for the Lunar White walking man displays. Install the ultra-bright type LEDs that are rated for 100,000 hours of continuous operation from -40°F to +165°F. Design modules to have a minimum useful life of 60 months and to meet all parameters of this specification during this period of useful life.

Design all modules to operate using a standard 3 - wire field installation. Provide spade terminals crimped to the lead wires and sized for a #10 screw connection to the existing terminal block in a standard pedestrian signal housing. Do not provide other types of crimped terminals with a spade adapter.

Ensure the power supply is integral to the module assembly. On the back of the module, permanently mark the date of manufacture (month & year) or some other method of identifying date of manufacture.

Provide modules in the following configuration: 16-inch displays which have the solid hand/walking man overlay on the left and the countdown on the right, and 12-inch displays which have the solid hand/walking man module as an overlay. All makes and models of LED modules purchased for use on the State Highway System shall appear on the current NCDOT Traffic Signal Qualified Products List (QPL).

Provide the manufacturer's model number and the product number (assigned by the Department) for each module that appears on the 2012 or most recent Qualified Products List. In addition, provide manufacturer's certification in accordance with Article 106-3 of the *Standard Specifications*, that each module meets or exceeds the ITE "Pedestrian Traffic Control Signal Indicators - Light Emitting Diode (LED) Signal Modules" dated August 04, 2010 (hereafter referred to as PTCSI Pedestrian Standard) and other requirements stated in this specification.

Provide modules that meet the following requirements when tested under the procedures outlined in the PTCSI Pedestrian Standard:

Module Type	Max. Wattage at 165° F	Nominal Wattage at 77° F
Hand Indication	16	13
Walking Man Indication	12	9
Countdown Indication	16	13

Note: Use a wattmeter having an accuracy of  $\pm 1\%$  to measure the nominal wattage and maximum wattage of a circular traffic signal module. Power may also be derived from voltage, current and power factor measurements.

Provide module lens that is hard coated or otherwise made to comply with the material exposure and weathering effects requirements of the Society of Automotive Engineers (SAE) J576. Ensure all exposed components of the module are suitable for prolonged exposure to the environment, without appreciable degradation that would interfere with function or appearance.

Ensure the countdown display continuously monitors the traffic controller to automatically learn the pedestrian phase time and update for subsequent changes to the pedestrian phase time.

Ensure the countdown display begins normal operation upon the completion of the preemption sequence and no more than one pedestrian clearance cycle.

**D. Signal Cable:**

Furnish 16-4 and 16-7 signal cable that complies with IMSA specification 20-1 except provide the following conductor insulation colors:

- For 16-4 cable: white, yellow, red, and green
- For 16-7 cable: white, yellow, red, green, yellow with black stripe tracer, red with black stripe tracer, and green with black stripe tracer. Apply continuous stripe tracer on conductor insulation with a longitudinal or spiral pattern.

Provide a ripcord to allow the cable jacket to be opened without using a cutter. IMSA specification 19-1 will not be acceptable. Provide a cable jacket labeled with the IMSA specification number and provide conductors constructed of stranded copper.



**STANDARD SPECIAL PROVISION**  
**AVAILABILITY OF FUNDS – TERMINATION OF CONTRACTS**

(5-20-08)

Z-2

*General Statute 143C-6-11. (h) Highway Appropriation* is hereby incorporated verbatim in this contract as follows:

(h) Amounts Encumbered. – Transportation project appropriations may be encumbered in the amount of allotments made to the Department of Transportation by the Director for the estimated payments for transportation project contract work to be performed in the appropriation fiscal year. The allotments shall be multiyear allotments and shall be based on estimated revenues and shall be subject to the maximum contract authority contained in *General Statute 143C-6-11(c)*. Payment for transportation project work performed pursuant to contract in any fiscal year other than the current fiscal year is subject to appropriations by the General Assembly. Transportation project contracts shall contain a schedule of estimated completion progress, and any acceleration of this progress shall be subject to the approval of the Department of Transportation provided funds are available. The State reserves the right to terminate or suspend any transportation project contract, and any transportation project contract shall be so terminated or suspended if funds will not be available for payment of the work to be performed during that fiscal year pursuant to the contract. In the event of termination of any contract, the contractor shall be given a written notice of termination at least 60 days before completion of scheduled work for which funds are available. In the event of termination, the contractor shall be paid for the work already performed in accordance with the contract specifications.

Payment will be made on any contract terminated pursuant to the special provision in accordance with Subarticle 108-13(E) of the *2012 Standard Specifications*.

**STANDARD SPECIAL PROVISION**  
**NCDOT GENERAL SEED SPECIFICATION FOR SEED QUALITY**

(5-17-11)

Z-3

Seed shall be sampled and tested by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory. When said samples are collected, the vendor shall supply an independent laboratory report for each lot to be tested. Results from seed so sampled shall be final. Seed not meeting the specifications shall be rejected by the Department of Transportation and shall not be delivered to North Carolina Department of Transportation warehouses. If seed has been delivered it shall be available for pickup and replacement at the supplier's expense.

Any re-labeling required by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory, that would cause the label to reflect as otherwise specified herein shall be rejected by the North Carolina Department of Transportation.

Seed shall be free from seeds of the noxious weeds Johnsongrass, Balloonvine, Jimsonweed, Witchweed, Itchgrass, Serrated Tussock, Showy Crotalaria, Smooth Crotalaria, Sickledpod, Sandbur, Wild Onion, and Wild Garlic. Seed shall not be labeled with the above weed species on the seed analysis label. Tolerances as applied by the Association of Official Seed Analysts will NOT be allowed for the above noxious weeds except for Wild Onion and Wild Garlic.

Tolerances established by the Association of Official Seed Analysts will generally be recognized. However, for the purpose of figuring pure live seed, the found pure seed and found germination percentages as reported by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory will be used. Allowances, as established by the NCDOT, will be recognized for minimum pure live seed as listed on the following pages.

The specifications for restricted noxious weed seed refers to the number per pound as follows:

<b><u>Restricted Noxious Weed</u></b>	<b><u>Limitations per Lb. Of Seed</u></b>	<b><u>Restricted Noxious Weed</u></b>	<b><u>Limitations per Lb. of Seed</u></b>
Blessed Thistle	4 seeds	Cornflower (Ragged Robin)	27 seeds
Cocklebur	4 seeds	Texas Panicum	27 seeds
Spurred Anoda	4 seeds	Bracted Plantain	54 seeds
Velvetleaf	4 seeds	Buckhorn Plantain	54 seeds
Morning-glory	8 seeds	Broadleaf Dock	54 seeds
Corn Cockle	10 seeds	Curly Dock	54 seeds
Wild Radish	12 seeds	Dodder	54 seeds
Purple Nutsedge	27 seeds	Giant Foxtail	54 seeds
Yellow Nutsedge	27 seeds	Horsenettle	54 seeds
Canada Thistle	27 seeds	Quackgrass	54 seeds
Field Bindweed	27 seeds	Wild Mustard	54 seeds
Hedge Bindweed	27 seeds		

Seed of Pensacola Bahiagrass shall not contain more than 7% inert matter, Kentucky Bluegrass, Centipede and Fine or Hard Fescue shall not contain more than 5% inert matter whereas a maximum of 2% inert matter will be allowed on all other kinds of seed. In addition, all seed shall not contain more than 2% other crop seed nor more than 1% total weed seed. The germination rate as tested by the North Carolina Department of Agriculture shall not fall below 70%, which includes both dormant and hard seed. Seed shall be labeled with not more than 7%, 5% or 2% inert matter (according to above specifications), 2% other crop seed and 1% total weed seed.

Exceptions may be made for minimum pure live seed allowances when cases of seed variety shortages are verified. Pure live seed percentages will be applied in a verified shortage situation. Those purchase orders of deficient seed lots will be credited with the percentage that the seed is deficient.

#### FURTHER SPECIFICATIONS FOR EACH SEED GROUP ARE GIVEN BELOW:

Minimum 85% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 83% pure live seed will not be approved.

Sericea Lespedeza  
Oats (seeds)

Minimum 80% pure live seed; maximum 1% total weed seed; maximum 2% total other crop; maximum 144 restricted noxious weed seed per pound. Seed less than 78% pure live seed will not be approved.

Tall Fescue (all approved varieties)	Bermudagrass
Kobe Lespedeza	Browntop Millet
Korean Lespedeza	German Millet – Strain R
Weeping Lovegrass	Clover – Red/White/Crimson
Carpetgrass	

Minimum 78% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 76% pure live seed will not be approved.

Common or Sweet Sundangrass

Minimum 76% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 74% pure live seed will not be approved.

Rye (grain; all varieties)  
Kentucky Bluegrass (all approved varieties)  
Hard Fescue (all approved varieties)  
Shrub (bicolor) Lespedeza

Minimum 70% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 noxious weed seed per pound. Seed less than 70% pure live seed will not be approved.

Centipedegrass  
Crownvetch  
Pensacola Bahiagrass  
Creeping Red Fescue

Japanese Millet  
Reed Canary Grass  
Zoysia

Minimum 70% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 5% inert matter; maximum 144 restricted noxious weed seed per pound.

Barnyard Grass  
Big Bluestem  
Little Bluestem  
Bristly Locust  
Birdsfoot Trefoil  
Indiangrass  
Orchardgrass  
Switchgrass  
Yellow Blossom Sweet Clover

## **STANDARD SPECIAL PROVISION**

### **ERRATA**

(1-17-12) (Rev. 11-18-14)

Z-4

Revise the 2012 *Standard Specifications* as follows:

#### **Division 2**

**Page 2-7, line 31, Article 215-2 Construction Methods**, replace “Article 107-26” with “Article 107-25”.

**Page 2-17, Article 226-3, Measurement and Payment, line 2**, delete “pipe culverts,”.

**Page 2-20, Subarticle 230-4(B), Contractor Furnished Sources, change references as follows:**

**Line 1**, replace “(4) Buffer Zone” with “(c) Buffer Zone”; **Line 12**, replace “(5) Evaluation for Potential Wetlands and Endangered Species” with “(d) Evaluation for Potential Wetlands and Endangered Species”; and **Line 33**, replace “(6) Approval” with “(4) Approval”.

#### **Division 3**

**Page 3-1, after line 15, Article 300-2 Materials**, replace “1032-9(F)” with “1032-6(F)”.

#### **Division 4**

**Page 4-77, line 27, Subarticle 452-3(C) Concrete Coping**, replace “sheet pile” with “reinforcement”.

#### **Division 6**

**Page 6-7, line 31, Article 609-3 Field Verification of Mixture and Job Mix Formula Adjustments**, replace “30” with “45”.

**Page 6-10, line 42, Subarticle 609-6(C)(2)**, replace “Subarticle 609-6(E)” with “Subarticle 609-6(D)”.

**Page 6-11, Table 609-1 Control Limits**, replace “Max. Spec. Limit” for the Target Source of  $P_{0.075}/P_{be}$  Ratio with “1.0”.

**Page 6-40, Article 650-2 Materials**, replace “Subarticle 1012-1(F)” with “Subarticle 1012-1(E)”

#### **Division 8**

**Page 8-23, line 10, Article 838-2 Materials**, replace “Portland Cement Concrete, Class B” with “Portland Cement Concrete, Class A”.

#### **Division 10**

**Page 10-166, Article 1081-3 Hot Bitumen**, replace “Table 1081-16” with “Table 1081-2”, replace “Table 1081-17” with “Table 1081-3”, and replace “Table 1081-18” with “Table 1081-4”.

#### **Division 12**

**Page 12-7, Table 1205-3**, add “FOR THERMOPLASTIC” to the end of the title.

**Page 12-8, Subarticle 1205-5(B), line 13**, replace “Table 1205-2” with “Table 1205-4”.

**Page 12-8, Table 1205-4 and 1205-5**, replace “THERMOPLASTIC” in the title of these tables with “POLYUREA”.

**Page 12-9, Subarticle 1205-6(B), line 21,** replace “Table 1205-4” with “Table 1205-6”.

**Page 12-11, Subarticle 1205-8(C), line 25,** replace “Table 1205-5” with “Table 1205-7”.

#### **Division 15**

**Page 15-4, Subarticle 1505-3(F) Backfilling, line 26,** replace “Subarticle 235-4(C)” with “Subarticle 235-3(C)”.

**Page 15-6, Subarticle 1510-3(B), after line 21,** replace the allowable leakage formula with the following:  $W = LD\sqrt{P} \div 148,000$

**Page 15-6, Subarticle 1510-3(B), line 32,** delete “may be performed concurrently or” and replace with “shall be performed”.

**Page 15-17, Subarticle 1540-3(E), line 27,** delete “Type 1”.

#### **Division 17**

**Page 17-26, line 42, Subarticle 1731-3(D) Termination and Splicing within Interconnect Center,** delete this subarticle.

Revise the *2012 Roadway Standard Drawings* as follows:

**1633.01 Sheet 1 of 1, English Standard Drawing for Matting Installation,** replace “1633.01” with “1631.01”.

## **STANDARD SPECIAL PROVISION**

### **PLANT AND PEST QUARANTINES**

#### **(Imported Fire Ant, Gypsy Moth, Witchweed, And Other Noxious Weeds)**

(3-18-03) (Rev. 10-15-13)

Z-04a

#### **Within Quarantined Area**

This project may be within a county regulated for plant and/or pests. If the project or any part of the Contractor's operations is located within a quarantined area, thoroughly clean all equipment prior to moving out of the quarantined area. Comply with federal/state regulations by obtaining a certificate or limited permit for any regulated article moving from the quarantined area.

#### **Originating in a Quarantined County**

Obtain a certificate or limited permit issued by the N.C. Department of Agriculture/United States Department of Agriculture. Have the certificate or limited permit accompany the article when it arrives at the project site.

#### **Contact**

Contact the N.C. Department of Agriculture/United States Department of Agriculture at 1-800-206-9333, 919-733-6932, or <http://www.ncagr.gov/plantind/> to determine those specific project sites located in the quarantined area or for any regulated article used on this project originating in a quarantined county.

#### **Regulated Articles Include**

1. Soil, sand, gravel, compost, peat, humus, muck, and decomposed manure, separately or with other articles. This includes movement of articles listed above that may be associated with cut/waste, ditch pulling, and shoulder cutting.
2. Plants with roots including grass sod.
3. Plant crowns and roots.
4. Bulbs, corms, rhizomes, and tubers of ornamental plants.
5. Hay, straw, fodder, and plant litter of any kind.
6. Clearing and grubbing debris.
7. Used agricultural cultivating and harvesting equipment.
8. Used earth-moving equipment.
9. Any other products, articles, or means of conveyance, of any character, if determined by an inspector to present a hazard of spreading imported fire ant, gypsy moth, witchweed or other noxious weeds.

## **STANDARD SPECIAL PROVISION**

### **AWARD OF CONTRACT**

(6-28-77)

Z-6

“The North Carolina Department of Transportation, in accordance with the provisions of *Title VI of the Civil Rights Act of 1964* (78 Stat. 252) and the Regulations of the Department of Transportation (49 C.F.R., Part 21), issued pursuant to such act, hereby notifies all bidders that it will affirmatively insure that the contract entered into pursuant to this advertisement will be awarded to the lowest responsible bidder without discrimination on the ground of race, color, or national origin”.



## **STANDARD SPECIAL PROVISION**

### **MINORITY AND FEMALE EMPLOYMENT REQUIREMENTS**

Z-7

#### NOTICE OF REQUIREMENTS FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (*EXECUTIVE NUMBER 11246*)

1. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, see as shown on the attached sheet entitled "Employment Goals for Minority and Female participation".

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in *41 CFR Part 60-4* shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in *41 CFR 60-4.3(a)*, and its effort to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project or the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the executive Order and the regulations in *41 CFR Part 60-4*. Compliance with the goals will be measured against the total work hours performed.

2. As used in this Notice and in the contract resulting from this solicitation, the "covered area" is the county or counties shown on the cover sheet of the proposal form and contract.

**EMPLOYMENT GOALS FOR MINORITY  
AND FEMALE PARTICIPATION**

Economic Areas

**Area 023 29.7%**

Bertie County  
Camden County  
Chowan County  
Gates County  
Hertford County  
Pasquotank County  
Perquimans County

**Area 024 31.7%**

Beaufort County  
Carteret County  
Craven County  
Dare County  
Edgecombe County  
Green County  
Halifax County  
Hyde County  
Jones County  
Lenoir County  
Martin County  
Nash County  
Northampton County  
Pamlico County  
Pitt County  
Tyrrell County  
Washington County  
Wayne County  
Wilson County

**Area 025 23.5%**

Columbus County  
Duplin County  
Onslow County  
Pender County

**Area 026 33.5%**

Bladen County  
Hoke County  
Richmond County  
Robeson County  
Sampson County  
Scotland County

**Area 027 24.7%**

Chatham County  
Franklin County  
Granville County  
Harnett County  
Johnston County  
Lee County  
Person County  
Vance County  
Warren County

**Area 028 15.5%**

Alleghany County  
Ashe County  
Caswell County  
Davie County  
Montgomery County  
Moore County  
Rockingham County  
Surry County  
Watauga County  
Wilkes County

**Area 029 15.7%**

Alexander County  
Anson County  
Burke County  
Cabarrus County  
Caldwell County  
Catawba County  
Cleveland County  
Iredell County  
Lincoln County  
Polk County  
Rowan County  
Rutherford County  
Stanly County

**Area 0480 8.5%**

Buncombe County  
Madison County

**Area 030 6.3%**

Avery County  
Cherokee County  
Clay County  
Graham County  
Haywood County  
Henderson County  
Jackson County  
McDowell County  
Macon County  
Mitchell County  
Swain County  
Transylvania County  
Yancey County

### SMSA Areas

Area 5720 26.6%

Currituck County

Area 9200 20.7%

Brunswick County

New Hanover County

Area 2560 24.2%

Cumberland County

Area 6640 22.8%

Durham County

Orange County

MECKLENBURG County

Area 1300 16.2%

Alamance County

Area 3120 16.4%

Davidson County

Forsyth County

Guilford County

Randolph County

Stokes County

Yadkin County

Area 1520 18.3%

Gaston County

Mecklenburg County

Union County

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### Goals for Female

#### Participation in Each Trade

(Statewide) 6.9%

## **STANDARD SPECIAL PROVISION**

### **REQUIRED CONTRACT PROVISIONS FEDERAL - AID CONSTRUCTION CONTRACTS**

FHWA - 1273 Electronic Version - May 1, 2012

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- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

#### **ATTACHMENTS**

- A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

#### **I. GENERAL**

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).  
The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.  
Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.  
Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).
2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.
3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.
4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

#### **II. NONDISCRIMINATION**

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. **Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are

incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

- a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.
- b. The contractor will accept as its operating policy the following statement:  
"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."
2. **EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.
3. **Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:
  - a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.
  - b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.
  - c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.
  - d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.
  - e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.
4. **Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.
  - a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.
  - b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.
  - c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.
5. **Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:
  - a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.
  - b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.
  - c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.
  - d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.
6. **Training and Promotion:**
  - a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.
  - b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).
  - c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.
  - d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. **Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:
  - a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.
  - b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.
  - c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.
  - d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.
8. **Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.
9. **Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.
  - a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.
  - b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.
10. **Assurance Required by 49 CFR 26.13(b):**
  - a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.
  - b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.
11. **Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.
  - a. The records kept by the contractor shall document the following:
    - (1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;
    - (2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and
    - (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;
  - b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

### III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

### IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

#### 1. Minimum wages

- a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the

Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

- b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:
  - (i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
  - (ii) The classification is utilized in the area by the construction industry; and
  - (iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- (2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
- (3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
- (4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.
- c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
- d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.
2. **Withholding.** The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.
3. **Payrolls and basic records**
  - a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.
  - b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the

payrolls shall only need to include an individually identifying number for each employee ( e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency.

- (2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
    - (i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;
    - (ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;
    - (iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
  - (3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.
  - (4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.
- c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.
- 4. Apprentices and trainees**
- a. Apprentices (programs of the USDOL). Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.
- The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.
- Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.
- In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
- b. Trainees (programs of the USDOL). Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.
- The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.
- Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.



In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.
- d. Apprentices and Trainees (programs of the U.S. DOT). Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.
5. **Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.
6. **Subcontracts.** The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.
7. **Contract termination:** debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.
8. **Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.
9. **Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.
10. **Certification of eligibility.**
  - a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
  - b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
  - c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

#### V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. **Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
2. **Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.
3. **Withholding for unpaid wages and liquidated damages.** The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.
4. **Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

#### VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).
  - a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees

from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
  - (2) the prime contractor remains responsible for the quality of the work of the leased employees;
  - (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
  - (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.
- b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.
2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.
  3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.
  4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.
  5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

## **VII. SAFETY: ACCIDENT PREVENTION**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.
2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).
3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

## **VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

## **IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

## **X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

### **1. Instructions for Certification – First Tier Participants:**

- a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.
- b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.
- c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.
- d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).
- f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.
- g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.
- h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.
- i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

\* \* \* \* \*

### **2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:**

- a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:
  - (1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;
  - (2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
  - (3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and
  - (4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

### **2. Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

- a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.
- b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

- c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.
- d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contractor). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).
- e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
- f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.
- g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.
- h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

\* \* \* \* \*

**Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion—Lower Tier Participants:**

- 1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.
- 2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

\* \* \* \* \*

**XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

- 1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:
  - a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
  - b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- 2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.
- 3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

## **STANDARD SPECIAL PROVISION**

### **ON-THE-JOB TRAINING**

(10-16-07) (Rev. 5-21-13)

Z-10

#### **Description**

The North Carolina Department of Transportation will administer a custom version of the Federal On-the-Job Training (OJT) Program, commonly referred to as the Alternate OJT Program. All contractors (existing and newcomers) will be automatically placed in the Alternate Program. Standard OJT requirements typically associated with individual projects will no longer be applied at the project level. Instead, these requirements will be applicable on an annual basis for each contractor administered by the OJT Program Manager.

On the Job Training shall meet the requirements of 23 CFR 230.107 (b), 23 USC – Section 140, this provision and the On-the-Job Training Program Manual.

The Alternate OJT Program will allow a contractor to train employees on Federal, State and privately funded projects located in North Carolina. However, priority shall be given to training employees on NCDOT Federal-Aid funded projects.

#### **Minorities and Women**

Developing, training and upgrading of minorities and women toward journeyman level status is a primary objective of this special training provision. Accordingly, the Contractor shall make every effort to enroll minority and women as trainees to the extent that such persons are available within a reasonable area of recruitment. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

#### **Assigning Training Goals**

The Department, through the OJT Program Manager, will assign training goals for a calendar year based on the contractors' past three years' activity and the contractors' anticipated upcoming year's activity with the Department. At the beginning of each year, all contractors eligible will be contacted by the Department to determine the number of trainees that will be assigned for the upcoming calendar year. At that time the Contractor shall enter into an agreement with the Department to provide a self-imposed on-the-job training program for the calendar year. This agreement will include a specific number of annual training goals agreed to by both parties. The number of training assignments may range from 1 to 15 per contractor per calendar year. The Contractor shall sign an agreement to fulfill their annual goal for the year. A sample agreement is available at [www.ncbowd.com/section/on-the-job-training](http://www.ncbowd.com/section/on-the-job-training).

## Training Classifications

The Contractor shall provide on-the-job training aimed at developing full journeyman level workers in the construction craft/operator positions. Preference shall be given to providing training in the following skilled work classifications:

Equipment Operators	Office Engineers
Truck Drivers	Estimators
Carpenters	Iron / Reinforcing Steel Workers
Concrete Finishers	Mechanics
Pipe Layers	Welders

The Department has established common training classifications and their respective training requirements that may be used by the contractors. However, the classifications established are not all-inclusive. Where the training is oriented toward construction applications, training will be allowed in lower-level management positions such as office engineers and estimators. Contractors shall submit new classifications for specific job functions that their employees are performing. The Department will review and recommend for acceptance to FHWA the new classifications proposed by contractors, if applicable. New classifications shall meet the following requirements:

Proposed training classifications are reasonable and realistic based on the job skill classification needs, and

The number of training hours specified in the training classification is consistent with common practices and provides enough time for the trainee to obtain journeyman level status.

The Contractor may allow trainees to be trained by a subcontractor provided that the Contractor retains primary responsibility for meeting the training and this provision is made applicable to the subcontract. However, only the Contractor will receive credit towards the annual goal for the trainee.

Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment.

No employee shall be employed as a trainee in any classification in which they have successfully completed a training course leading to journeyman level status or in which they have been employed as a journeyman.

## **Records and Reports**

The Contractor shall maintain enrollment, monthly and completion reports documenting company compliance under these contract documents. These documents and any other information as requested shall be submitted to the OJT Program Manager.

Upon completion and graduation of the program, the Contractor shall provide each trainee with a certification Certificate showing the type and length of training satisfactorily completed.

## **Trainee Interviews**

All trainees enrolled in the program will receive an initial and Trainee/Post graduate interview conducted by the OJT program staff.

## **Trainee Wages**

Contractors shall compensate trainees on a graduating pay scale based upon a percentage of the prevailing minimum journeyman wages (Davis-Bacon Act). Minimum pay shall be as follows:

60 percent	of the journeyman wage for the first half of the training period
75 percent	of the journeyman wage for the third quarter of the training period
90 percent	of the journeyman wage for the last quarter of the training period

In no instance shall a trainee be paid less than the local minimum wage. The Contractor shall adhere to the minimum hourly wage rate that will satisfy both the NC Department of Labor (NCDOL) and the Department.

## **Achieving or Failing to Meet Training Goals**

The Contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and who receives training for at least 50 percent of the specific program requirement. Trainees will be allowed to be transferred between projects if required by the Contractor's scheduled workload to meet training goals.

If a contractor fails to attain their training assignments for the calendar year, they may be taken off the NCDOT's Bidders List.

## **Measurement and Payment**

No compensation will be made for providing required training in accordance with these contract documents.

**STANDARD SPECIAL PROVISION**  
**MINIMUM WAGES**  
**GENERAL DECISION NC140097 01/03/2014 NC97**

Z-97

Date: January 3, 2014

General Decision Number: NC140097 01/03/2014 NC97

Superseded General Decision Numbers: NC20130097

State: North Carolina

Construction Type: HIGHWAY

**COUNTIES:**

Alleghany	Jackson	Surry
Ashe	Macon	Swain
Avery	McDowell	Transylvania
Cherokee	Mitchell	Watauga
Clay	Polk	Wilkes
Graham	Rutherford	Yancey

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects, railroad construction, bascule, suspension and spandrel arch bridges designed for commercial navigation, bridges involving marine construction, and other major bridges).

Modification Number  
0

Publication Date  
01/03/2014



	Rates	Fringes
CARPENTER (Form Work Only)	13.29	
CEMENT MASON/CONCRETE FINISHER		
Cherokee County	13.95	
Remaining Counties	13.82	
IRONWORKER (Reinforcing)	13.81	
LABORER		
Asphalt, Asphalt Distributor, Raker, and Spreader	13.07	
Common or General		
Cherokee County	10.59	
Jackson County	10.36	
McDowell County	10.83	
Mitchell and Yancey Counties	11.17	
Remaining Counties	11.01	
Swain County	11.24	
Concrete Saw	11.61	
Landscape	9.57	
Luteman	12.24	
Mason Tender (Cement/Concrete)	10.53	
Pipelayer	9.00	
Traffic Control (Flagger)	10.31	
POWER EQUIPMENT OPERATORS		
Backhoe/Excavator/Trackhoe	14.75	
Broom/Sweeper	12.29	
Bulldozer	14.37	
Crane	16.75	
Grader/Blade	15.98	
Loader	14.21	
Mechanic	14.00	
Milling Machine	14.43	
Oiler	11.50	
Paver	12.00	
Roller		
Alleghany and Cherokee Counties	12.91	
Remaining Counties	13.39	
Scraper	12.29	
Screed	15.82	
Tractor	13.60	
TRUCK DRIVER		
Dump Truck	12.52	
Lowboy Truck	15.71	
Single Axle Truck	11.83	
Water Truck	13.82	

Welders – Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is union or non-union.

#### Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters , PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rates.

0000/9999: weighted union wage rates will be published annually each January.

#### Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U. S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, D.C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, D.C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, D.C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

## **GREENWAYS AND MULTI-USE PATHS:**

(2-18-14)

Z-200

### **Description**

This special provision provides for revisions to the *2012 Standard Specifications* for work on a greenway or multi-use path not designed or intended to carry highway traffic.

### **Materials**

Refer to the *2012 Standard Specifications* except as noted in these Special Provisions. Use materials on the NCDOT Approved Products List (APL) where applicable.

### **Construction Methods**

Construct Greenway in accordance with the contract plans, *2012 Standard Specifications* except as noted below:

SECTION	ARTICLE	PAGE	REVISION
235: Embankments	235-3(C): Embankment Compaction	2-23	<b>Delete first sentence and replace with the following:</b> Compact each layer for its full width to a density equal to at least 90% of that obtained by compacting a sample of the material in accordance with AASHTO T 99 as modified by the Department.
500: Fine Grading Subgrade	500-2(C): Compaction of Subgrade	5-1	<b>Delete first sentence and replace with the following:</b> Compact all material to a depth of up to 8 inches below the finished surface of the subgrade to a density equal to at least 92% of that obtained by compacting a sample of the material in accordance with AASHTO T 99 as modified by the Department.
500: Fine Grading Subgrade	500-3: Tolerances	5-2	<b>Delete Article 500-3 and replace with the following:</b> A tolerance of plus or minus one inch from the established greenway grade will be permitted after the subgrade has been graded to a uniform surface.
505: Aggregate Subgrade	505-3: Construction Methods	5-8	<b>Delete first paragraph and replace with the following:</b> Perform shallow undercut up to 12 inches as necessary to remove unsuitable material. If necessary, install geotextile for soil stabilization in accordance with Article 270-3. Place Class III select material or Class IV subgrade stabilization (standard size no. ABC) by end dumping on geotextiles. Do not operate heavy equipment on geotextiles until geotextiles are covered with Class III or ABC. Compact ABC to 92% or to the highest density that can be reasonably attained.

SECTION	ARTICLE	PAGE	REVISION
520: Aggregate Base Course	520-7: Shaping and Compaction	5-11	<p><b>Delete first sentence in second paragraph and replace with the following:</b> For both nuclear and ring tests, compact each layer of the base to a density equal to at least 92% of that obtained by compacting a sample of the material in accordance with AASHTO T 180 as modified by the Department.</p> <p><b>Delete the third paragraph.</b></p>
610: Asphalt Concrete Plant Mix Pavements	610-10: Density Requirements	6-28	<p><b>Delete Article 610-10 and replace with the following:</b> Compact the asphalt plant mix to at least 85% of the maximum specific gravity.</p>
610: Asphalt Concrete Plant Mix Pavements	610-13: Final Surface Testing and Acceptance	6-29	<p><b>Delete Article 610-13.</b></p>
848: Concrete Sidewalks	848-3: Construction Methods	8-30	<p><b>Delete second paragraph and replace with the following:</b> Construct concrete greenway based on the typical sections in the plans. Place groove joints at a spacing equal to the width of the greenway. Transverse Expansion Joints are required every 40 feet.</p>

Subcontract Request Number:

County: \_\_\_\_\_

Retainage	Certification	Reporting No.
<input type="checkbox"/>		

Retainage	Certification	Reporting No.
<input type="checkbox"/>		

Line Code Number	Item Description	Portion (●)	Partial (◆)	Sub or 2nd Tier	Quantity	UOM	CP *	DBE/MBE/WBE Unit Price	DBE/MBE/WBE Sublet Amount	Subcontract Unit Price	Total Subcontract Amount
Indicates a Portion of Work (●)			Indicates a Partial Item (◆)					DBE/MBE/WBE Amount		Subcontract Amt.	

The Contractor / Subcontractor certifies that the subcontract is in writing and that FHWA 1273, "Required Contract Provisions," have been included in the subcontract / 2<sup>nd</sup> tier subcontract in its entirety.

<b>APPROVED:</b>	
Resident Engineer	Date

Approved with the understanding that the Contractor will be responsible for the satisfactory performance and completion of the work in compliance with the terms of the contract and that all payments will be made to the Contractor.

Approved with the understanding that the Contractor will be responsible for the satisfactory performance and completion of the work in compliance with the terms of the contract and that all payments will be made to the Contractor.

STATE OF NORTH CAROLINA  
COUNTY SALES AND USE TAX REPORT  
SUMMARY TOTALS AND CERTIFICATION  
(PAID DURING THIS ESTIMATE PERIOD)

CONTRACTOR: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_

PROJECT: \_\_\_\_\_

FOR PERIOD: \_\_\_\_\_

	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL ALL COUNTIES
CONTRACTOR							
SUBCONTRACTOR(S)*							
COUNTY TOTAL							

\* Attach subcontractor(s) report(s)

\*\* Must balance with Detail Sheet(s)

I certify that the above figures do not include any tax paid on supplies, tools and equipment which were used to perform this contract and only includes those building materials, supplies, fixtures and equipment which actually became a part of or annexed to the building or structure. I certify that, to the best of my knowledge, the information provided here is true, correct, and complete.

Sworn to and subscribed before me,

This the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
Signed

\_\_\_\_\_  
Notary Public

My Commission Expires: \_\_\_\_\_

\_\_\_\_\_  
Print or Type Name of Above

Seal

NOTE:

This certified statement may be subject to audit.

## STATE OF NORTH CAROLINA SALES AND USE TAX REPORT DETAIL

CONTRACTOR: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_

SUBCONTRACTOR \_\_\_\_\_

FOR PERIOD: \_\_\_\_\_

PROJECT: \_\_\_\_\_

PURCHASE DATE	VENDOR NAME	INVOICE NUMBER	TYPE OF PROPERTY	INVOICE TOTAL	COUNTY TAX PAID	COUNTY OF SALE *
				\$	\$	
				TOTAL:	\$	

\* If this is an out-of-state vendor, the County of Sale should be the county to which the merchandise was shipped.



## SCHEDULE

### PART 1 -- GENERAL

#### 1.01 THE REQUIREMENT

##### A. Progress Schedule

1. Within thirty days after issuance of the Notice to Proceed, the Contractor shall prepare and submit five copies of his proposed construction progress schedule to the Engineer for review and approval.
2. If so required, the schedule shall be revised until it is approved by the Engineer.
3. The schedule shall be updated monthly, depicting progress to the last day of the month.
  - a. Five copies of the updated schedule shall be submitted to the Engineer with the monthly application for progress payment.
4. The Contractor shall create and maintain a Critical Path Method (CPM) Project Schedule showing the sequence of work intended to be completed within the allotted contract time. The project schedule shall employ computerized CPM for the planning, scheduling, and reporting of the work. The CPM schedule shall be prepared using the Precedence Diagram Method (PDM) and shall contain cost loading. The schedule shall be presented in horizontal bar chart format showing in detail the proposed sequence of the work and identify construction activities for each structure and each portion of work.
5. The schedule shall be time scaled, identifying the first day of each week, with the estimated date for starting and completing each stage of the work in order to complete the Project within the Contract time.
6. Cost Loading – Assign resources to each activity to include budget units and budgeted costs calculated as budget units x unit price. Percent complete type shall be Units Percent Complete. Duration type shall be Fixed Duration/Units. Earned value shall be reported from the schedule.
7. The schedule shall contain milestones for long lead item shop drawing submittal, shop drawing review, fabrication, and delivery.
8. Each updated schedule shall show all changes since the previous submittal.
9. All revisions to the schedule must have the prior approval of the Engineer.

10. The construction schedule shall show as a minimum the following work tasks as appropriate for each segment of the greenway trail:

Erosion and Sediment Control Installation  
Construction Staking  
Clearing & Grubbing  
Grading  
Concrete paving  
Drainage Structure Installation  
Pavement Marking  
Signing  
Signal Installation

PART 2 -- PRODUCTS

(NOT USED)

PART 3 -- EXECUTION

(NOT USED)

- END OF SECTION -

## PROJECT CLOSEOUT

### PART 1 -- GENERAL

#### 1.01 THE REQUIREMENT

##### A. Final Cleaning

1. At the completion of the work, the Contractor shall remove all rubbish, temporary structures, construction signs, tools, scaffolding, materials, supplies, and equipment that he or any of his Subcontractors may have used in the performance of the work from and about the site of the work.
  - a. The Contractor shall broom clean paved surfaces and rake clean other surfaces of grounds and wood chips.
2. The Contractor shall thoroughly clean all materials and structures.
  - a. All marred surfaces shall be touched up to match adjacent surfaces.
3. The Contractor shall maintain cleaning until the project, or portion thereof, is accepted by the Owner.

##### B. Final Cleanup and Site Rehabilitation

1. Before finally leaving the site, the Contractor shall wash and clean all exposed surfaces which have become soiled or marked.
2. Contractor shall remove from the site of the work all accumulated debris and surplus materials of any kind which resulted from his operation, including construction equipment, tools, sheds, sanitary enclosures, etc.
3. The Contractor shall leave all materials and work which he has installed in a clean condition.
4. The completed project shall be turned over to the Owner in a neat and orderly condition.
5. The site of the work shall be rehabilitated or developed in accordance with this and other sections of the Specifications and the Drawings.
6. In the absence of any portion of these requirements, the Contractor shall completely rehabilitate the site to a condition and appearance equal or superior to that which existed just prior to construction, except for those items whose permanent removal or relocation was required in the Contract Documents or ordered by the Owner.

##### C. Final Inspection

1. Final cleaning and repairing shall be so arranged as to be finished upon completion of the construction work.

- a. Any portion of the work finally inspected and accepted by the Owner shall be kept clean by the Contractor until the final acceptance of the entire work.
2. When the Contractor has finally cleaned and repaired the whole or any portion of the work, he shall notify the Engineer that he is ready for the final inspection of the whole or a portion of the work.
  - a. The Engineer will thereupon inspect the work.
  - b. If the work is found unsatisfactory, the Engineer will order further cleaning, repairs, or replacement.
3. When such further cleaning or repairing is completed, the Engineer will, upon further notice, inspect the work again.
  - a. The "Final Payment" will not be processed until the Contractor has complied with the requirements set forth, and the Engineer has made his final inspection of the entire work and is satisfied that the entire work is properly and satisfactorily constructed in accordance with the requirements of the Contract Documents.

#### D. Project Close Out

1. As construction of the project enters the final stages of completion, the Contractor shall, in concert with accomplishing the requirements set forth in the Contract Documents, attend to or have already completed the following items as they apply to his contract:
  - a. Correcting or replacing defective work, including completion of items previously overlooked or work which remains incomplete, all as evidenced by the Engineer's "Punch" Lists.
  - b. Attend to any other items listed herein or brought to the Contractor's attention by the Engineer.
2. Just before the Engineer's Certificate of Substantial Completion is issued, the Contractor shall accomplish the cleaning of the various project components as specified in the Specifications and as follows:
  - a. Clean all bridges, superstructures, boardwalks, retaining walls, and railings.

- b. Touch up marks or defects in painted surfaces, and touch up any similar defects in factory finished surfaces.
  - c. Remove all stains, marks, fingerprints, soil, spots, and blemishes from all finished surfaces, such as concrete, retaining wall, timber cribbing, and similar surfaces.
- 3. Before the Certificate of Substantial Completion is issued, the Contractor shall submit to the Engineer (or to the Owner if indicated) certain records, certifications, etc., which are specified elsewhere in the Contract Documents.
  - a. A partial list of such items appears below, but it shall be the Contractor's responsibility to submit any other items which are required in the Contract Documents:
    - 1). Test results of project components.
    - 2). Certification of materials in compliance with Contract Documents.
    - 3). One set of neatly marked-up record drawings showing as-built changes and additions to the work under his Contract.
    - 4). Any special guarantees or bonds.
    - 5). Marked-up Record Shop Drawings

## PART 2 -- PRODUCTS

(NOT USED)

## PART 3 -- EXECUTION

(NOT USED)

- END OF SECTION -

## **PROJECT SPECIAL PROVISION**

(10-18-95) (Rev. 2-18-14)

Z-1

### **PERMITS**

The Contractor's attention is directed to the following permits, which have been issued to the Department of Transportation by the authority granting the permit.

<b><u>PERMIT</u></b>	<b><u>AUTHORITY GRANTING THE PERMIT</u></b>
Fill and/or Work in Jurisdictional Wetland (404)	U. S. Army Corps of Engineers
Sedimentation and Erosion Control	Division of Energy, Mineral, and Land Resources, DENR, State of North Carolina

The Contractor shall comply with all applicable permit conditions during construction of this project. Those conditions marked by \* are the responsibility of the Department and the Contractor has no responsibility in accomplishing those conditions.

Agents of the permitting authority will periodically inspect the project for adherence to the permits.

The Contractor's attention is also directed to Articles 107-10 and 107-13 of the *2012 Standard Specifications* and the following:

Should the Contractor propose to utilize construction methods (such as temporary structures or fill in waters and/or wetlands for haul roads, work platforms, cofferdams, etc.) not specifically identified in the permit (individual, general, or nationwide) authorizing the project it shall be the Contractor's responsibility to coordinate with the Engineer to determine what, if any, additional permit action is required. The Contractor shall also be responsible for initiating the request for the authorization of such construction method by the permitting agency. The request shall be submitted through the Engineer. The Contractor shall not utilize the construction method until it is approved by the permitting agency. The request normally takes approximately 60 days to process; however, no extensions of time or additional compensation will be granted for delays resulting from the Contractor's request for approval of construction methods not specifically identified in the permit.

**Where construction moratoriums are contained in a permit condition which restricts the Contractor's activities to certain times of the year, those moratoriums will apply only to the portions of the work taking place in the waters or wetlands provided that activities outside those areas is done in such a manner as to not affect the waters or wetlands.**

**U.S. ARMY CORPS OF ENGINEERS**  
**WILMINGTON DISTRICT**

Action Id. SAW-2014-01609 County: Surry U.S.G.S. Quad: NC-MOUNT AIRY SOUTH

**GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION**

Permittee: City of Mount Airy  
Mitch Williams, CE

Address: 440 East Pine Street

Telephone Number: Mount Airy, NC 27030  
336-786-3580

Size (acres) 2 acres (approximately)  
Nearest Waterway Lovills Creek  
USGS HUC 3040101

Nearest Town Mount Airy  
River Basin Upper Yadkin, Virginia, North Carolina.  
Coordinates Latitude: 36.4826463274816  
Longitude: -80.6078063373549

Location description: The site is located along a 2.2 mile segment of Lovills Creek and the Ararat River near the Newsome Street, State Highway 52 intersection in Mt. Airy, North Carolina.

Description of projects area and activity: This authorization is for permanent impacts to jurisdictional wetlands associated with the construction of a 2.2 mile greenway trail along Lovills Creek and the Ararat River as follows: Crossing #1 ( Impact #W1, 36.4824, -80.6075): Wetland WF-0.03 acre of permanent fill for greenway construction. Crossing #2 (Impact #W2, 36.4798, -80.6006): Wetland WC-0.006 acre of permanent fill for greenway construction.

Applicable Law: ☒ Section 404 (Clean Water Act, 33 USC 1344)  
☐ Section 10 (Rivers and Harbors Act, 33 USC 403)

Authorization: Regional General Permit Number or Nationwide Permit Number: NWP 14 Linear Transportation Projects.

***SEE ATTACHED RGP or NWP GENERAL, REGIONAL AND SPECIAL CONDITIONS***

**Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the attached conditions and your submitted application and attached information dated August 8, 2014 including updated information provided on October 8, 2014. Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order, a Class I administrative penalty, and/or appropriate legal action.**

This verification will remain valid until the expiration date identified below unless the nationwide authorization is modified, suspended or revoked. If, prior to the expiration date identified below, the nationwide permit authorization is reissued and/or modified, this verification will remain valid until the expiration date identified below, provided it complies with all requirements of the modified nationwide permit. If the nationwide permit authorization expires or is suspended, revoked, or is modified, such that the activity would no longer comply with the terms and conditions of the nationwide permit, activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon the nationwide permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend or revoke the authorization.

Activities subject to Section 404 (as indicated above) may also require an individual Section 401 Water Quality Certification. You should contact the NC Division of Water Quality (telephone 919-807-6300) to determine Section 401 requirements.

For activities occurring within the twenty coastal counties subject to regulation under the Coastal Area Management Act (CAMA), prior to beginning work you must contact the N.C. Division of Coastal Management in Morehead City, NC, at (252) 808-2808.

This Department of the Army verification does not relieve the permittee of the responsibility to obtain any other required Federal, State or local approvals/permits.

If there are any questions regarding this verification, any of the conditions of the Permit, or the Corps of Engineers regulatory program, please contact Andrew Williams at 919-554-4884 x26 or Andrew.E.Williams2@usace.army.mil.

Corps Regulatory Official: Andrew Williams Date: 11/04/2014  
Expiration Date of Verification: 03/18/2017

Digitally signed by WILLIAMS.ANDREW.E.1244561655  
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI,  
ou=USA, cn=WILLIAMS.ANDREW.E.1244561655  
Date: 2014.11.04 06:44:05 -05'00'

## **Determination of Jurisdiction:**

- A. ☒ Based on preliminary information, there appear to be waters of the US including wetlands within the above described project area. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).
- B. ☐ There are Navigable Waters of the United States within the above described project area subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- C. ☐ There are waters of the US and/or wetlands within the above described project area subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- D. ☐ The jurisdictional areas within the above described project area have been identified under a previous action. Please reference jurisdictional determination issued . Action ID: **SAW-** .

**Basis For Determination:** Lovills Creek, is a relatively permanent water (RPW) and is a tributary to the Ararat River, a traditionally navigable water (TNW), in the lower reaches. The Ararat River, is a tributary to the Yadkin River, a TNW. The Yadkin River is a tributary to the Pee Dee River, a navigable water of the United States. The Ordinary High Water Marks (OHWMs) of the Lovills Creek and the Ararat River were indicated by bed and banks shown on the applicants drawings. Wetlands identified as WA, WE, WF and WG are abutting the Ararat River. Wetlands identified as WB, BC and BE are abutting Lovills Creek. All wetlands meet the hydrophytic vegetation, wetland hydrology, and hydric soil criteria of the 1987 Corps of Engineers Wetland Delineation Manual and the Eastern Mountains and Piedmont Regional Supplement.

**This jurisdictional determination is only for the wetlands proposed for impacts associated with this Nationwide Permit verification and does not include any other waters/wetlands that may be located on the project site.**

**Remarks:** None

### **E. Attention USDA Program Participants**

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

### **F. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B and C above).**

This correspondence constitutes an approved jurisdictional determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers  
South Atlantic Division  
Attn: Jason Steele, Review Officer  
60 Forsyth Street SW, Room 10M15  
Atlanta, Georgia 30303-8801  
Phone: (404) 562-5137



In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **January 2, 2015**.

**\*\*It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.\*\***

Corps Regulatory Official:   
**Andrew Williams**

Digitally signed by WILLIAMS.ANDREW.E.1244561655  
DN: cn=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA,  
c=WILLIAMS.ANDREW.E.1244561655  
Date: 2014.11.04 06:44:36 -05'00'

Date of JD: **11/03/2014**

Expiration Date of JD: **November 4, 2019**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete our customer Satisfaction Survey online at <http://regulatory.usacesurvey.com/>.

Copy furnished:

Jacob Byers  
Michael Baker International, LLC  
797 Haywood Road, Suite 201  
Asheville, NC 28806

Sue Homewood  
North Carolina Department of Natural Resources  
Division of Water Resources  
585 Waughtown Street  
Winston-Salem, NC 27107

Action ID Number: SAW-2014-01609

County: Surry

Permittee: City of Mount Airy  
Mitch Williams, CE

Project Name: Mt. Airy, City of/Greenway Connector Project

Date Verification Issued: 11/04/2014

Project Manager: Andrew Williams

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

US ARMY CORPS OF ENGINEERS  
WILMINGTON DISTRICT  
Attn: Andrew Williams  
3331 Heritage Trade Drive, Suite 105  
Wake Forest, North Carolina 27587

Please note that your permitted activity is subject to a compliance inspection by a U. S. Army Corps of Engineers representative. Failure to comply with any terms or conditions of this authorization may result in the Corps suspending, modifying or revoking the authorization and/or issuing a Class I administrative penalty, or initiating other appropriate legal action.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and condition of the said permit, and required mitigation was completed in accordance with the permit conditions.

---

Signature of Permittee

---

Date

## NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: <b>City of Mount Airy</b> <b>Mitch Williams, CE</b>	File Number: <b>SAW-2014-01609</b>	Date: <b>11/04/2014</b>
Attached is:		See Section below
<input type="checkbox"/> INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A	
<input type="checkbox"/> PROFFERED PERMIT (Standard Permit or Letter of permission)	B	
<input type="checkbox"/> PERMIT DENIAL	C	
<input type="checkbox"/> APPROVED JURISDICTIONAL DETERMINATION	D	
<input checked="" type="checkbox"/> PRELIMINARY JURISDICTIONAL DETERMINATION	E	

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at or <http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx> or the Corps regulations at 33 CFR Part 331.

### A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

### B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**C: PERMIT DENIAL:** You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**D: APPROVED JURISDICTIONAL DETERMINATION:** You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**E: PRELIMINARY JURISDICTIONAL DETERMINATION:** You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

**SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT**

**REASONS FOR APPEAL OR OBJECTIONS:** (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

**ADDITIONAL INFORMATION:** The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

**POINT OF CONTACT FOR QUESTIONS OR INFORMATION:**

If you have questions regarding this decision and/or the appeal process you may contact:

**District Engineer, Wilmington Regulatory Division, Attn:  
Andrew Williams  
3331 Heritage Trade Drive, Suite 105  
Wake Forest, North Carolina 27587**

If you only have questions regarding the appeal process you may also contact:

**Mr. Jason Steele, Administrative Appeal Review Officer  
CESAD-PDO  
U.S. Army Corps of Engineers, South Atlantic Division  
60 Forsyth Street, Room 10M15  
Atlanta, Georgia 30303-8801  
Phone: (404) 562-5137**

**RIGHT OF ENTRY:** Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

\_\_\_\_\_  
Signature of appellant or agent.

Date:

Telephone number:

*For Permit denials, Proffered Permits and approved Jurisdictional Determinations send this form to:*

**Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Jason Steele, Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801  
Phone: (404) 562-5137**



North Carolina Department of Environment and Natural Resources

Pat McCrory  
Governor

John E. Skvarla, III  
Secretary

November 10, 2014

**LETTER OF APPROVAL**

Mitch Williams  
City of Mt. Airy  
440 EAST PINE ST  
MOUNT AIRY NC 27030

RE: Project Name: CITY OF MOUNT AIRY GREENWAY CONNECTOR PROJECT  
Acres Approved: 12.05  
Project ID: SURRY-2015-006  
County: Surry, City: Mount Airy  
Address: Carter St.  
River Basin: Yadkin-Pee Dee  
Stream Classification: Other  
Submitted By: Baker  
Date Received by LQS: October 13, 2014  
Plan Type: Recreational

Dear Sir or Madam:

This office has reviewed the subject erosion and sedimentation control plan. We find the plan to be acceptable and hereby issue this Letter of Approval. The enclosed Certificate of Approval must be posted at the job site. This plan approval shall expire three (3) years following the date of approval, if no land-disturbing activity has been undertaken, as is required by Title 15A NCAC 4B .0129.

Please be aware that your project will be covered by the enclosed NPDES Construction Stormwater General Permit NCG010000. Please become familiar with all the requirements and conditions of this permit in order to achieve compliance.

Title 15A NCAC 4B .0118(a) requires that a copy of the approved erosion control plan be on file at the job site. Also, this letter gives the notice required by G.S. 113A-61.1(a) of our right of periodic inspection to insure compliance with the approved plan.

Letter of Approval  
Mitch Williams  
November 10, 2014  
Page 2 of 2

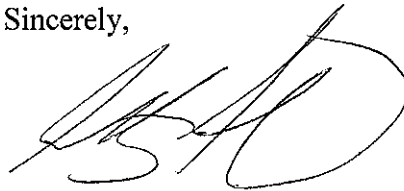
North Carolina's Sedimentation Pollution Control Act is performance-oriented, requiring protection of existing natural resources and adjoining properties. If, following the commencement of this project, the erosion and sedimentation control plan is inadequate to meet the requirements of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statute 113A-51 through 66), this office may require revisions to the plan and implementation of the revisions to insure compliance with the Act.

Acceptance and approval of this plan is conditioned upon your compliance with Federal and State water quality laws, regulations, and rules. In addition, local city or county ordinances or rules may also apply to this land-disturbing activity. This approval does not supersede any other permit or approval.

Please note that this approval is based in part on the accuracy of the information provided in the Financial Responsibility Form, which you provided. You are requested to file an amended form if there is any change in the information included on the form. In addition, it would be helpful if you notify this office of the proposed starting date for this project. Please notify us if you plan to have a preconstruction conference.

Your cooperation is appreciated.

Sincerely,

A handwritten signature in black ink, appearing to read 'SS', with a large, stylized loop at the end.

Scott Sink  
Assistant Regional Engineer  
Land Quality Section

Enclosures: Certificate of Approval  
NPDES Permit

cc: Michael Baker Engineering  
Jacob Byers, PE  
8000 Regency Pkwy, Suite 600  
Cary, NC 27518

# CERTIFICATE OF PLAN APPROVAL



The posting of this certificate certifies that an erosion and sedimentation control plan has been approved for this project by the North Carolina Department of Environment and Natural Resources in accordance with North Carolina General Statute 113A - 57 (4) and 113A - 54 (d) (4) and North Carolina Administrative Code, Title 15A, Chapter 4B.0007 (c). This certificate must be posted at the primary entrance of the job site before construction begins and until establishment of permanent groundcover as required by North Carolina Administrative Code, Title 15A, Chapter 4B.0027 (b).

MT. AILEY GREENWAY

Surry Co.

Project Name and Location

Surry-2015-006

11/10/14

Date of Plan Approval



Asst. Regional Engineer  
Land Quality Section

DIVISION OF LAND RESOURCES



# STEWART

STRONGER BY DESIGN

## **GEOTECHNICAL ENGINEERING REPORT**

### **LOVILLS CREEK AND ARARAT RIVER GREENWAY**

Worth St. to Tharington Park  
Mount Airy, North Carolina

August 1, 2014



## GEOTECHNICAL ENGINEERING REPORT

### LOVILLS CREEK AND ARARAT RIVER GREENWAY

Worth Street to Tharington Park  
Mount Airy, North Carolina

August 1, 2014

Prepared For:

**City of Mount Airy Parks & Recreation**

113 Renfro Street  
Mount Airy, NC 27030

Prepared By:

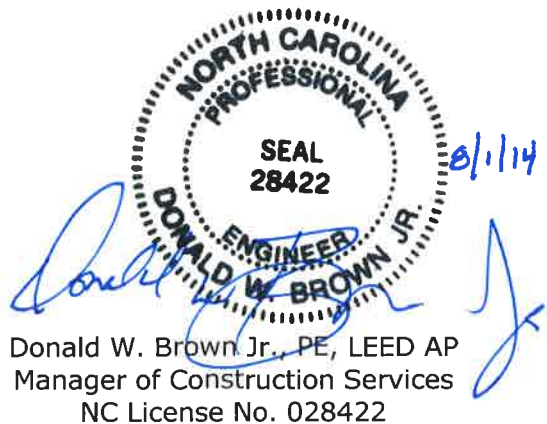
**STEWART**

2201 Brentwood Road  
Suite 105  
Raleigh, NC 27604

Stewart Project No.: H13007.00



William J. Muessen, EI  
Geotechnical Engineering Intern



Donald W. Brown Jr., PE, LEED AP  
Manager of Construction Services  
NC License No. 028422

Stewart Engineering License No. C-1051

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### **Appendix A**

Site Vicinity Map  
Boring Location Diagrams

### **Appendix B**

Boring Logs  
Legend To Soil Descriptions  
DMCP Test Data

### **Appendix C**

Site Photographs

### **Appendix D**

NCDOT Foundation Recommendations

## **1 PROJECT INFORMATION**

### **1.1 Project Understanding**

The information presented in this section was utilized in the geotechnical evaluation. Therefore, if any of the noted information is incorrect or has changed, please inform us so that we may amend the recommendations presented in this report, if appropriate or necessary. As we understand it, the project will consist of the following:

#### **1.1.1 Trail**

The greenway trail will consist of a new 10-foot wide trail that connects Worth Street to Tharington Park. The majority of the trail will be paved with asphalt; however, several segments will utilize concrete paving. The trail will generally follow the existing topography with anticipated maximum cuts and fill on the order of 6 feet. The total project length is 2.19 miles.

#### **1.1.2 Pedestrian Bridges**

Two pedestrian bridges will be constructed along the trail. No heavy truck or equipment loading will be allowed on the bridges, but they will be designed to support moderate loads induced by ambulances and other vehicles/equipment up to 10,000 lb. (AASHTO H5 loading).

- Bridge 1 is an 80-foot long, single-span, prefabricated metal bridge that will span Lovills Creek near Worth Street. The top of the end bents for this bridge will be approximately 5 to 6 feet above the surrounding grade and thus will require boardwalk approaches. The bottom of cap elevations are expect to be at or slightly below the ground surface. End Bent 2 of this bridge will be protected by a debris deflector consisting of soldier piles and paneling.
- Bridge 2 will begin at station -L- 122+08 and will have a single 50-foot span over a small creek near Tharington Park. This bridge will also be a prefabricated metal structure. The end bents for this structure will be at or just above grade and retain the associated approach fill. No boardwalk approaches are planned for this structure

#### **1.1.3 Boardwalks**

There will be a total of three boardwalks. Boardwalks will consist of timber construction. Specific to the foundation, each bent will consist of two timber piles (8 feet center-to center, typ.) and a timber cap. Standard boardwalk spans will be 10 and 20 feet from cap to cap.

- Boardwalk 1 begins at station -L- 21+80 and extends 127 feet to the beginning of Bridge 1. Boardwalk 1 will consist of 10-foot spans, with the exception of one 20 span at station -L- 22+30.
- Boardwalk 2 begins at the end of Bridge 2, which is station -L- 23+87, and extends 133 feet. Boardwalk 2 will only include 10 spans.
- Boardwalk 3 is a low profile structure that extends from station -L- 60+90 to 61+30, making it 40 feet long. The boardwalk spans will be 10 and 20 feet.

#### 1.1.4 Retaining Walls

There will be a total of five retaining walls constructed along the greenway.

- Retaining Wall 1 begins at station -L- 68+70 and extends 70 feet under Carter Street. This wall will have a maximum height of 4 feet.
- Retaining Wall 2 begins at station -L- 70+20 and extends 110 feet along Ararat River near the confluence near Lovills Creek. This wall will have a maximum height of 7 feet.
- Retaining Wall 3 begins at station -L- 85+30 feet and extends up the Ararat River for 50 feet. This wall will have a maximum height of 4 feet.
- Retaining Wall 4 begins to the south of US 52, which is station -L- 91+25, and extends 40 feet. This wall will have a maximum height of 8 feet.
- Retaining Wall 5 begins at station -L- 96+65 and extends 70 feet up the Ararat River. This wall will have a maximum height of 2 feet.

#### 1.1.5 Railroad Canopy

The project will include a canopy structure over the trail at its underpass of the Southern Railroad bridge. The structure will be approximately 24½ feet long and consist of hollow structural steel framing and a corrugated metal roof with 8½-foot clear height. The trail through this area will be paved with concrete.

### 1.2 **Site Location and Generalized Description**

The subject site is located in the southern portion of Mount Airy, North Carolina. The trail extends from Worth Street at the end of an existing greenway to Tharington Park. The trail follows Lovills Creek South. At the confluence of Lovills Creek and Ararat River the trail turns northward and follows Ararat River. The trail alignment traverses several open, grass-covered areas, including sewer alignment, as well as wooded and heavily vegetated areas. Portions of the trail are along existing steeply sloped banks for the Lovills Creek or Ararat River.

### 1.3 **Geologic Area Overview**

The project site is located within Mount Airy, North Carolina and lies within the southern edge of the Blue Ridge Belt of the Piedmont Physiographic Province of the eastern United States. Review of the Geologic Map of the East Half of the Winston-Salem Quadrangle, North Carolina-Virginia (compiled by G. H. Espenshade, D.W. Ranking, K. Wier Shaw, and R.B. Neuman, 1975) indicates that the site area is within the Spruce Pine Plutonic Group, which is characterized by biotite-muscovite granodiorite and quartz monzonite, typically containing epidote. The rock cored at the bridge locations appear to be quartz monzogranite.

## 2 SUBSURFACE EXPLORATION

### 2.1 Field Testing

#### 2.1.1 Bridges, Boardwalks and Retaining Walls

The subsurface conditions at the bridge locations were evaluated with a total of four soil test borings (B1-1, B1-2, B2-1 and B2-2), one at the approximate location of each end bent, advanced to depths ranging from approximately 22 feet to 31.8 feet below the current grades. Boardwalk locations were each evaluated with one soil test boring (BW1, BW2, and BW3). The boardwalk borings were advanced to depth ranging from approximately 18.5 feet to 30 feet below the existing ground surface. The area of Retaining Wall #1 was evaluated with one soil test boring (RW1) to approximately 20 feet below the current grade. The remaining four retaining walls (RW2 thru RW5) areas could not be accessed with drilling equipment.

Drilling was performed using a Mobile B-57 drill rig using hollow-stem augers. All boring and sampling operations were conducted in general accordance with ASTM D1586. At predetermined intervals, soil samples were obtained with a split-barrel sampler (standard 2-inch O.D.). The sampler was rested on the bottom of the borehole and driven to a penetration of 18 inches (or fraction thereof) with blows of an automatic 140-pound drop hammer falling 30 inches. Of the 18 inches, the number of hammer blows required to achieve 6 inches of penetration is recorded for three consecutive segments. The sum of the blow counts for the second and third 6-inch segment is termed the Standard Penetration Test (SPT) resistance, or N-value.

Rock coring was performed at B1-1 and B2-2 to assess the character and continuity of the rock at these bridge locations. Rock coring extended approximately 10 feet into the rock layer and was performed using a NQ-sized core barrel.

The soil and rock samples obtained during the drilling operations were placed in labeled containers and transported to our laboratory where they were visually-manually classified and logged by a Professional Engineer. The soil samples will be stored for two months before discarding.

The Boring Logs are included in Appendix B of this report.

#### 2.1.2 Trail

Subsurface conditions along the trail were explored using hand augers. Twenty hand auger borings (T1 through T20) were advanced to depths ranging from approximately 1 to 4 feet below the current grades. Beside each of the hand auger borings, the strength of the subgrade was also evaluated using a dual-mass cone penetrometer (DMCP). The DMCP is a testing instrument consisting of a slender rod with a 60-degree conical tip and an interchangeable drop weight (10.1 lb or 17.6 lb). The DMCP is advanced in a continuous-drive process with blow counts recorded every two inches. The results of the DMCP are typically correlated to in-situ field condition California Bearing Ratio (CBR) values, which are used to design pavement. The DMCP Test Data sheets are included in Appendix B of this report.

One soil test boring was conducted for a retaining wall in the vicinity of station 30+00, but the retaining wall was deleted from the project after our fieldwork was complete. This soil test boring (T4a), which was advanced to approximately 24.4 feet below the existing grade, was repurposed for our trail evaluation.

## 2.2 Subsurface Conditions

The following is a subsurface description of a generalized nature, provided to highlight the major soil strata encountered. The stratification of the subgrade materials illustrated on the logs represents the conditions at the actual test locations; therefore, variations should be expected between borings. Stratigraphy boundaries only represent the approximate depth/elevation of a noticed material change but the transition between material types is typically gradual. Also note that the elevations mentioned herein were interpolated from the available topographic data and should be considered approximate.

### 2.2.1 Ground Cover

Topsoil was encountered at all twenty hand auger boring locations and all nine soil test boring locations ranging from approximately 3 to 7 inches thick. Deeper pockets of both topsoil could be encountered in unexplored areas of the project. Please note the term topsoil is used to describe the organic-laden surficial material. No organic or nutrient testing was performed for this exploration; therefore, the topsoil should not be assumed capable of establishing or maintaining vegetation of any kind.

### 2.2.2 Fill

Fill soil was encountered beneath the topsoil in four of the nine soil test borings (BW1, BW3, T4a, and RW1) to depths ranging from approximately 3 to 12 feet beneath the existing ground surface. The fill at the boring locations generally consist of soft to stiff Sandy SILT (ML) with N-values ranging from 4 to 14 blows per foot (bpf).

### 2.2.3 Alluvium

Alluvial soil was encountered beneath the topsoil and fill in eight of the nine soil test borings (all except T4a). Alluvium is water-deposited sediment that accumulates over time and is generally unconsolidated due to its deposition. The alluvium extends to depths ranging from approximately 5.5 to 22 feet beneath the existing ground surface. The alluvial soils generally consisted very soft to stiff Sandy SILT (ML) and very loose to dense Silty SAND (SM). The N-values in the alluvial soil layer ranged from 0 to 46 blows per foot.

### 2.2.4 Residuum

Residual soils, which are the product of in-place physical and/or chemical weathering of the parent bedrock, was encountered underlying the above-mentioned fill and alluvium in eight of the nine soil test borings (all except B2-2). The residuum generally consists medium dense to very dense SAND (SM).

### 2.2.5 Weathered Rock

Often times a transitional geo-material, generally referred to as Weathered Rock (WR), is encountered between the overlying soil and bedrock or as suspended layers/lenses within a soil mass. To be classified as weathered rock, the material must exhibit a resistance of 50 blows with 6 inches or less penetration during Standard Penetration Testing (SPT). Weathered rock was encountered in six soil test borings at the approximate depths and elevations noted in Table 1.

**Table 1: Weathered Rock Depths and Elevations**

Boring	WR Depth (ft)	WR Elevation (ft)	Boring	WR Depth (ft)	WR Elevation (ft)
B1-1	8	978.5	B2-2	17	972.0
B1-2	17	969.0	BW2	16	970.0
B2-1	22	967.0	T4a	22	976.0

### 2.2.6 Rock

Material of sufficient hardness to refuse penetration of mechanical augers is typically considered rock. Such material was encountered in four borings at approximate depths/elevations noted in Table 2.

**Table 2: Rock Depths and Elevations**

Boring	Rock Depth (ft)	Rock Elevation (ft)	Boring	Rock Depth (ft)	Rock Elevation (ft)
B1-1	22.0	964.5	B2-1	31.8	957.2
B1-2	22.5	963.5	B2-2	23.5	965.5

In order to evaluate the refusal material, 10 feet of rock coring was performed for End Bent 1 of Bridge 1 (boring B1-1) and End Bent 2 of Bridge 2 (boring B2-2). The rock was classified to be quartz monzogranite.

**Table 3: Rock Core Summary**

Run	Elev., ft	Recovery	RQD*	Description**
<u>Bridge 1, End Bent 1 (Boring B1-1)</u>				
#1	964.5-959.5	92	86	Fresh and very hard with close fractures
#2	959.5-954.5	99	96	Fresh and very hard with close fractures
<u>Bridge 2, End Bent 2 (Boring B2-2)</u>				
#1	965.5-960.5	81	75	Moderately severely weathered and moderately hard with moderately close fractures.
#2	960.5-955.5	84	83	Moderate to moderately severely weathered and moderately hard with moderately close fractures.

\* Rock Quality Designations (RQD) \*\*NCDOT rock descriptions

### 2.2.7 Groundwater

Groundwater was encountered in seven of the nine soil test borings as shown in Table 4 below. Borings B2-1, BW3, and RW1 were filled in after drilling (FIAD) for safety reasons, but all other boreholes were allowed to remain open for 24+ hours to allow groundwater to stabilize. After groundwater measurements were recorded, each borehole was backfilled with drill cuttings (soil).

**Table 4: Groundwater Measurements**

<b>Boring</b>	<b>Groundwater Depth at 0-Hr, ft</b>	<b>Groundwater Depth After 24± hours, ft</b>	<b>Cave-in Depth After 24± hours, ft</b>
B1-1	4	2	8
B1-2	2.5	2.5	8
B2-1	9	FIAD	9.5
B2-2	DRY	11	18
BW1	DRY	DRY	12
BW2	3	DRY	2.5
BW3	8.5	FIAD	12.5
T4a	DRY	DRY	20
RW1	13	FIAD	14

\*FIAD – Filled In After Drilling

The groundwater conditions represent the conditions at the time of the exploration. Fluctuations in groundwater levels are common and should be expected. Common factors that influence groundwater levels include, but are not limited to, soil stratification, climate/weather, nearby bodies of water (lakes, ponds, etc.), underground springs, streams, rivers and surface water discharge. At the onset, as well as continually throughout the construction process, the contractor should monitor groundwater levels if determined to be detrimental to the project. Management of groundwater can significantly impact construction procedures/practices, schedules and project budgets.



### 3 DESIGN RECOMMENDATIONS

#### 3.1 Trail

##### 3.1.1 Subgrade Preparation

Initially, all topsoil, vegetation, and any other unsatisfactory/deleterious materials should be removed from the proposed areas scheduled for site development for a lateral distance of at least 2 feet beyond the trail edges.

After stripping, the in-situ soil should be scarified, moisture-conditioned to within  $\pm 3$  percent of the material's optimum water content, and then compacted as required by Section 500 of the NCDOT Standard Specifications for Roads and Structures (SSRS). Fill selection and compaction requirements shall also be in accordance with the SSRS.

The subgrade should also be proofrolled using a tandem-axle dump truck weighing at least 15 tons to verify stability. Proofrolling should occur at three points of trail construction – proofroll existing grade prior to placing fill in low areas; proofroll finished subgrade prior to stone base placement; and then proofroll stone base prior to paving. Proofrolling should be performed in the presence of the owner's testing agency so that recommendations can be provided for areas that perform poorly.

Based on the DMCP data and our observations along the trail corridor, we expect that most of the existing surficial soils will provide a suitable base on which to construct the proposed trail. However, areas of erosion, wet surficial conditions, and/or soft soils were encountered along isolated segments of the alignment which we expect will require repair prior to paving. These areas are shown in Table 5 below.

**Table 5: Anticipate Trail Repair Areas**

Begin Sta.	End Sta.	Length (ft)	Comments
47+06	49+28	222	Soft, wet ground surface beneath US 52
93+27	94+00	73	Ground surface eroded
94+75	95+50	75	Soft ground surface
96+00	96+40	40	Soft ground surface
98+57	101+00	243	Soft ground surface

*Note: The observations above were noted during our fieldwork in April 2014, during a dry period (no recent rain).*

For repair of these areas, we recommend budgeting for 18 inches of undercut, backfilled with compacted ABC stone over a layer of geogrid (Tensar TX-160 or equivalent). Where applicable, the depth of undercut can be reduced if the conditions warrant and the owner's testing agency deems it acceptable. The undercut of unsuitable subgrade soils should extend a minimum of 2 feet laterally beyond the edge of asphalt.

It should be further noted that at-grade construction is heavily contingent of recent/current weather conditions. As such, construction in the wet season may render the trail's subgrade unsatisfactory for support as compared to the same subgrade in the drier season.

### 3.1.2 Asphalt Pavement

The flexible pavement design shown in Table 6 is based on the standard 20-year design life and the N.C. Department of Transportation Interim Pavement Design Procedure, 2000 (with 2007 updates). We have assumed that typical loading will consist of 10 maintenance vehicles (pick-up trucks) per week.

**Table 6: Asphalt Pavement Section**

Layer	Layer Thickness (in.)
Surface Course (S9.5B)	2
Aggregate Base Course (ABC)	8

All materials and workmanship should comply with the SSRS as it pertains to asphalt pavement. We also recommend using the sampling and testing criteria contained the SSRS.

### 3.1.3 Concrete Pavement

The rigid pavement recommendations listed in Table 7 are based on the above-mentioned traffic loading assumptions and design methodology in ACI 330 Design and Construction of Concrete Parking Lots

**Table 7: Concrete Pavement Section**

Layer	Layer Thickness (in.)
Concrete (4,500 psi*)	4.5
Aggregate Base Course (ABC)	N/A

Concrete pavement should be air entrained and have the material properties prescribed in Table 1000-1 in the SSRS.

## 3.2 Bridge Foundations

### 3.2.1 Bridge 1

Bridge 1 is an 80-foot long, single-span, prefabricated metal bridge that will span Lovills Creek near Worth Street. The top of the end bents for this bridge will be approximately 5 to 6 feet above the surrounding grade and thus will require boardwalk approaches. The bottom of cap (BOC) elevation for both end bents is 985.3 feet, which is expected to be slightly below the ground surface. Based on information provided by Stewart's bridge engineers, the end bent loading conditions are as shown in Table 8.

**Table 8: Bridge 1 Design Loads (Factored)**

Condition	Max. Load on End Bent (kips)
Axial*	270
Lateral	16.8

*\*Compression load. No uplift capacity needed.*

Based on the subsurface conditions encountered at the site, as well as the structural loading, we recommend the use of caissons to support the bridge. For this bridge, a single, “hammerhead”-style foundation is planned. For this project we recommend the use of 42-inch diameter caissons embedded a minimum of 2 feet into hard rock for which we recommend a factored resistance of 300 kips per caisson. The standard NCDOT Foundation Recommendations and recommend Plan Notes are attached in Appendix D of this report. Please note that our capacities and minimum tip elevations assume 8 feet of scour.

We recommend a minimum concrete compression strength of 4,500 psi and 60 ksi reinforcing steel. Caissons should have full depth reinforcing with the proper side and bottom clearances. All shafts should be inspected by the Owner’s testing agency to verify suitable bearing conditions and the concrete shall be tested for compressive strength.

### 3.2.2 Bridge 2

Bridge 2 will begin at station -L- 122+08 and will have a single 50-foot span over a small creek near Tharington Park. This bridge will also be a prefabricated metal structure. The anticipated BOC for End Bents 1 and 2 are 984.2 and 984.1, respectively. No boardwalk approaches are planned for this structure. Based on information provided by Stewart’s bridge engineers, the end bent loading conditions are as shown in Table 9.

**Table 9: Bridge 2 Design Loads (Factored)**

Condition	Max. Load in End Bent (kips)
Axial*	115

*\*Compression load. No uplift capacity needed.*

Based on the subsurface conditions encountered in the borings, pile loading, and the limited construction area, we recommend supporting the end bent caps/footings using steel HP 12x53 piles. We anticipate pile driving refusal at an approximate elevations of 965 feet and 970 feet at End Bents 1 and 2, respectively. Lateral loads in the cap will be resisted by a single battered pile. The standard NCDOT Foundation Recommendations and recommend Plan Notes are attached in Appendix D of this report.

At the onset of construction, the proposed pile driving equipment should be submitted to the NCDOT for review and for establishing pile driving criteria for production.

### 3.3 Boardwalk Foundations

This greenway will include three boardwalks as discussed in Section 1.1.3 of this report. Each boardwalk will be designed to support moderate loads induced by ambulances and other vehicles/equipment up to 10,000 lb (AASHTO H5 loading). The boardwalks will consist of timber construction. Specific to the foundation, each bent will consist of two timber piles located approximately 8 feet center-to center with a timber cap. Boardwalks will utilize 10-foot and 20-foot spans as deemed appropriate by the designer. Both span lengths will have maximum unsupported (above-grade) pile lengths of 4 feet. Based on information provided by Stewart’s bridge engineers, the pile loading conditions (per pile) are as shown in Table 10.

**Table 10: Boardwalk Design Loads (Factored)**

Load	10-foot Span	20-foot Span
Axial*, kips	8.8	13.5
Lateral, kips	1.4	2.1

*\*Compression load. No uplift capacity needed.*

Table 9 presents the estimated pile embedment lengths required for axial capacity as well as the minimum tip depths that the piles must reach in order to achieve lateral stability. The depths in Table 11 are relative to the ground surface at the each pile location.

**Table 11: Boardwalk Pile Depths**

Condition	10-foot Span	20-foot Span
<u>Boardwalk #1</u>		
Estimated Pile Depth, ft	14	17
Minimum Tip Depth, ft	11	13
<u>Boardwalk #2</u>		
Estimated Pile Depth, ft	16	N/A
Minimum Tip Depth, ft	10	N/A
<u>Boardwalk #3</u>		
Estimated Pile Depth, ft	22	25
Minimum Tip Depth, ft	12	12

*Scour notes: Boardwalks #1 and #2 include 1.5 feet of scour.  
Boardwalk #3 does not consider scour.*

In order to establish the pile driving (blow count) criteria, the subsurface data herein and hammer submittal information should be used to perform a wave equation analysis of pile driving (WEAP). We recommend a pile driving resistance factor ( $\phi$ ) of 0.6 for the conditions encountered during our exploration and thus driving resistances of 15 kips and 25 kips should be used for piles supporting 10-foot and 20-foot spans, respectively.

The boardwalk piles can be advanced with impact or vibratory pile driving equipment; however, if piles are set with a vibratory hammer we recommend establishing a "refusal" criteria or other means by which to verify that adequate pile capacity has been attained. This can be accomplished by correlating the vibratory penetration with drop hammer blows and/or PDA tests. Furthermore at least one pile per 10 piles driven must be struck with an impact hammer after vibratory installation to verify adequate capacity. However, please note that the testing agency reserves the right to have additional piles struck with the impact hammer.

Piles should be installed under continuous monitoring by a geotechnical engineer or representative thereof in order to make field judgments of pile penetration and to check for appropriate size, length, materials, splicing and defects. Piles should be monitored during driving for handling, location, plumbness, hammer performance, and penetration.

### 3.4 Railroad Canopy Foundation

#### 3.4.1 Design

The use of shallow spread footings is considered appropriate for the proposed structure. According to the information we have at this time, the foundations will consist of circular, post-type footings. For design of the canopy foundations, we recommend the design parameters provided in Table 12.

**Table 12: Foundation Design Parameters**

Parameter	Value
Net Allowable Soil Bearing Capacity*, psf	2,000
Minimum Bearing Depth, in.	30
Moist Soil Unit Weight, pcf	115
Passive Earth Pressure Coefficient**	2.77
Ultimate Base Friction Factor ( $\tan \delta$ )	0.30

*\* Allowable soil bearing pressure should include dead load plus sustained live load. \*\*We recommend that a safety factor of at least 1.5 be used to determine the soil's allowable passive resistance and the soil's allowable friction.*

#### 3.4.2 Construction

Once excavated, the footings should be cleaned of loose material and protected from disturbance. This includes protection from surface water run-off and freezing. If water is allowed to accumulate within a footing excavation and soften the bearing soils, or if the bearing soils are allowed to freeze, the deficient soils should be removed from the excavation and rechecked by the testing agency prior to concrete placement. When concrete cannot be placed immediately, we recommend placing a mud-mat to protect the bearing soil.

Foundation bearing materials should be checked during construction to verify satisfactory bearing conditions (i.e. materials and strength). We recommend that qualified personnel representing the Owner's testing agency use a ½-inch diameter, T-handled probe rod for an overall qualitative assessment throughout the foundation excavations, followed by strategically-placed hand auger borings and Dynamic Cone Penetrometer (DCP) testing for quantitative evaluation. Such testing should be performed in accordance with ASTM STP-399 and completed prior to steel or concrete placement. Unsuitable soil detected during this evaluation should be repaired as directed by an engineer from the Owner's testing agency.

### 3.5 Retaining Walls

Based on the assumption that these walls will be backfilled with select granular material, we recommend using the material properties shown below.

**Table 13: Retaining Wall Design Parameters**

Parameter	Value
Moist Soil Weight ( $\gamma$ ), pcf	120
Internal Angle of Friction ( $\Phi$ ), deg.	30
Cohesion (c), psf	0

For retaining walls along the trail, we recommend an allowable soil bearing capacity of 1,000 psf. The footing should bear no less than 24 inches below the surrounding finished grade for bearing considerations and frost protection. All footings should be evaluated as discussed in Section 3.4.1 of this report to check for adequate bearing prior to placement of reinforcing steel. Soft or otherwise unsuitable soils should be undercut and backfilled with compacted select material meeting the requirements in Sections 410-8 and 1016 of the NCDOT Standard Specifications for Roads and Structures (SSRS).

### 3.6 Debris Deflector

The steel HP 12x53 piles installed for the debris deflector are designed to resist a lateral force of 4.5 kips per pile and an axial load of 1 kip. Such piles should be embedded to a minimum tip depth of 17 feet below the existing grade, which includes accounting for 6 feet of scour.

## **APPENDIX A**

SITE VICINITY MAP  
BORING LOCATION DIAGRAM



**SITE VICINITY MAP**  
 LOVILLS CREEK AND ARARAT RIVER GREENWAY  
 MOUNT AIRY, NC

STEWART PROJECT NO.:		SCALE:	NTS
H13007.00			
DATE:	8-1-14	FIGURE NO.:	
PREPARED BY:	DWB	A1	





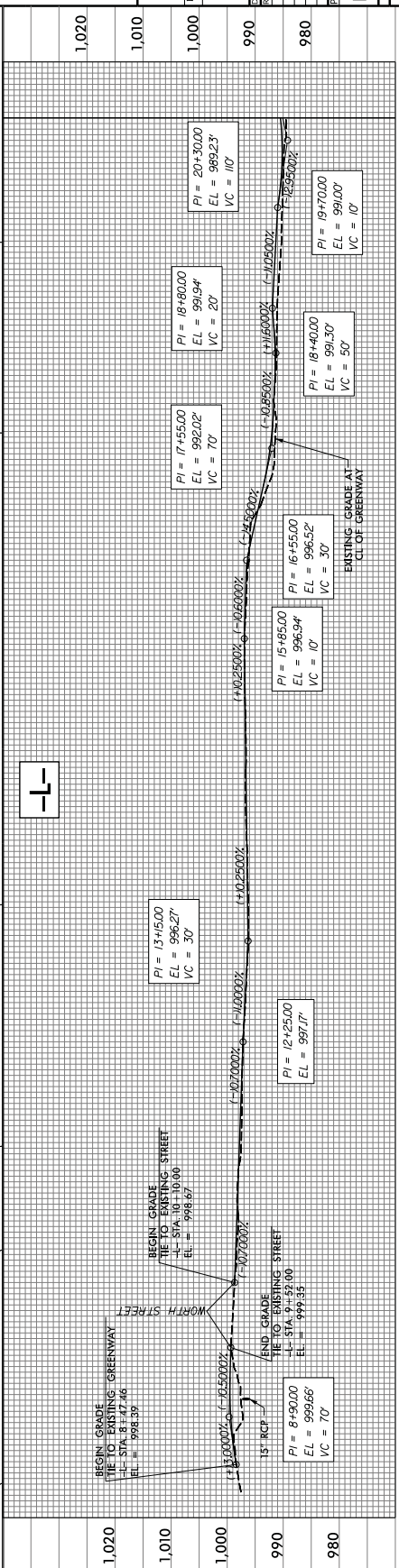
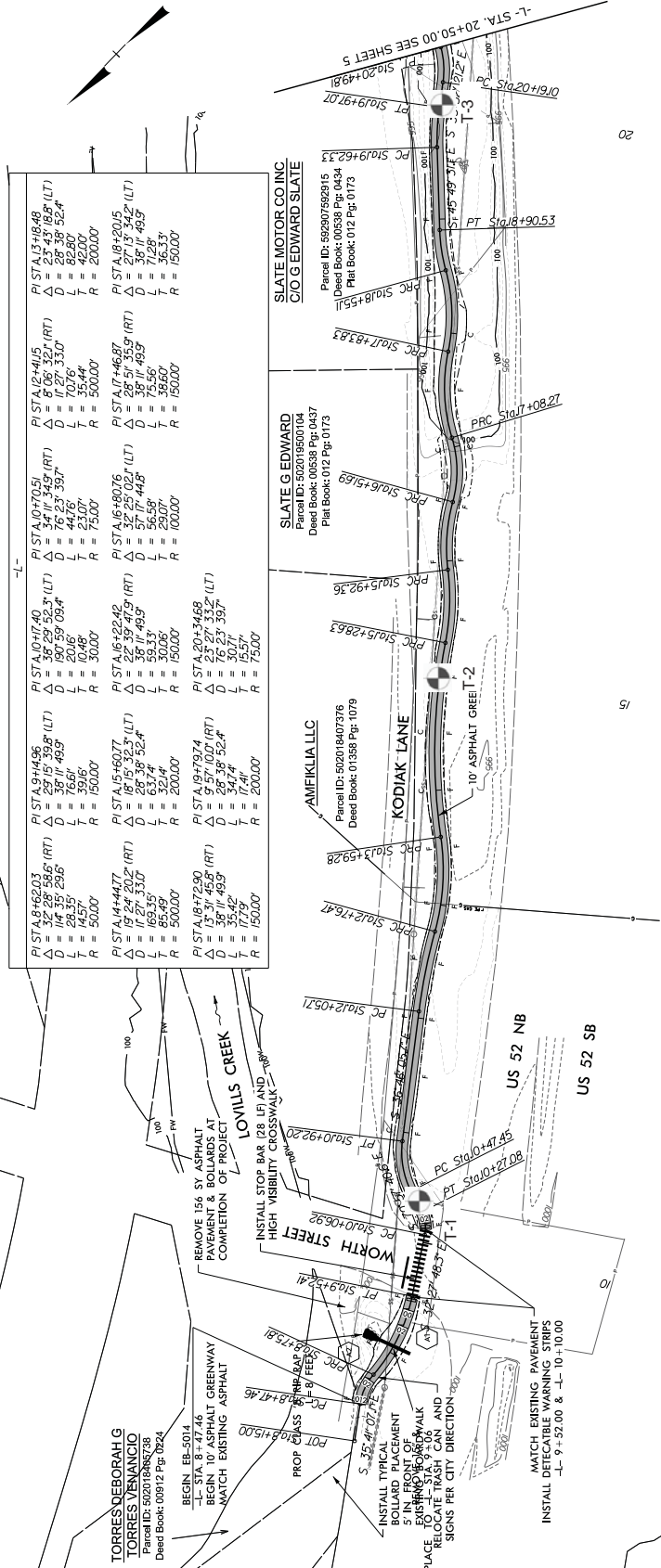
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F 919.380.8750  
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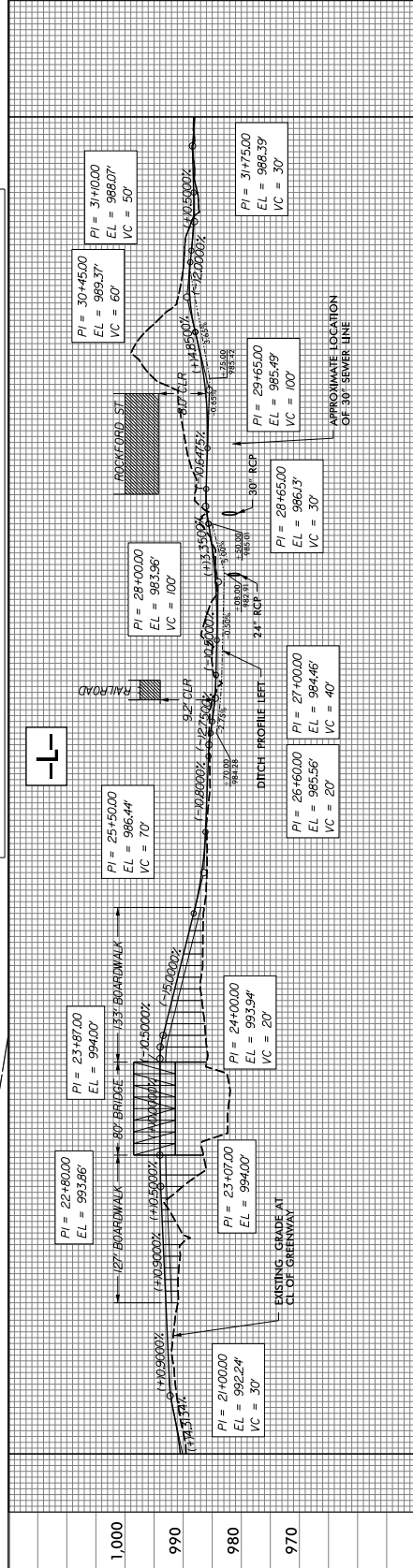
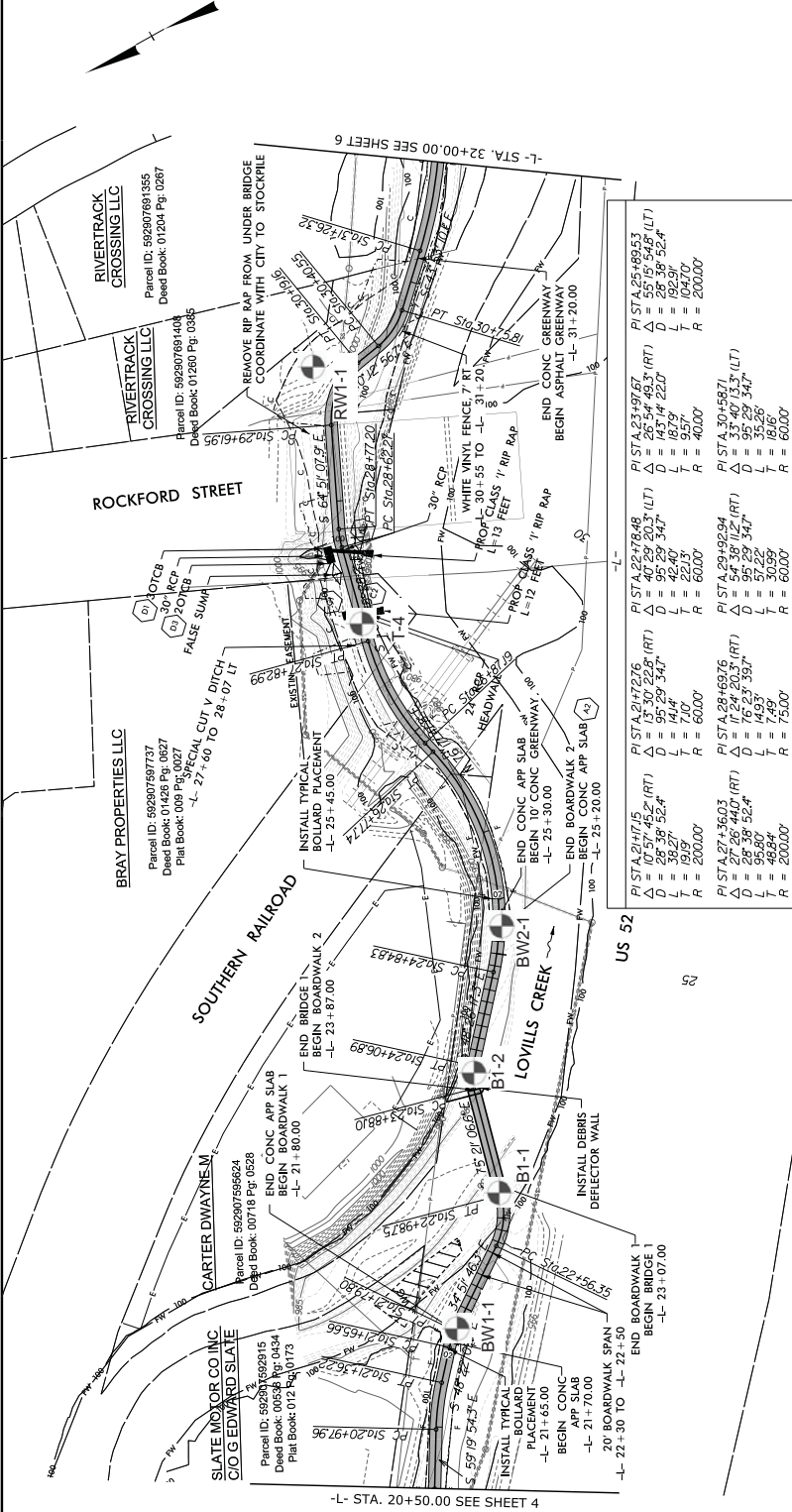
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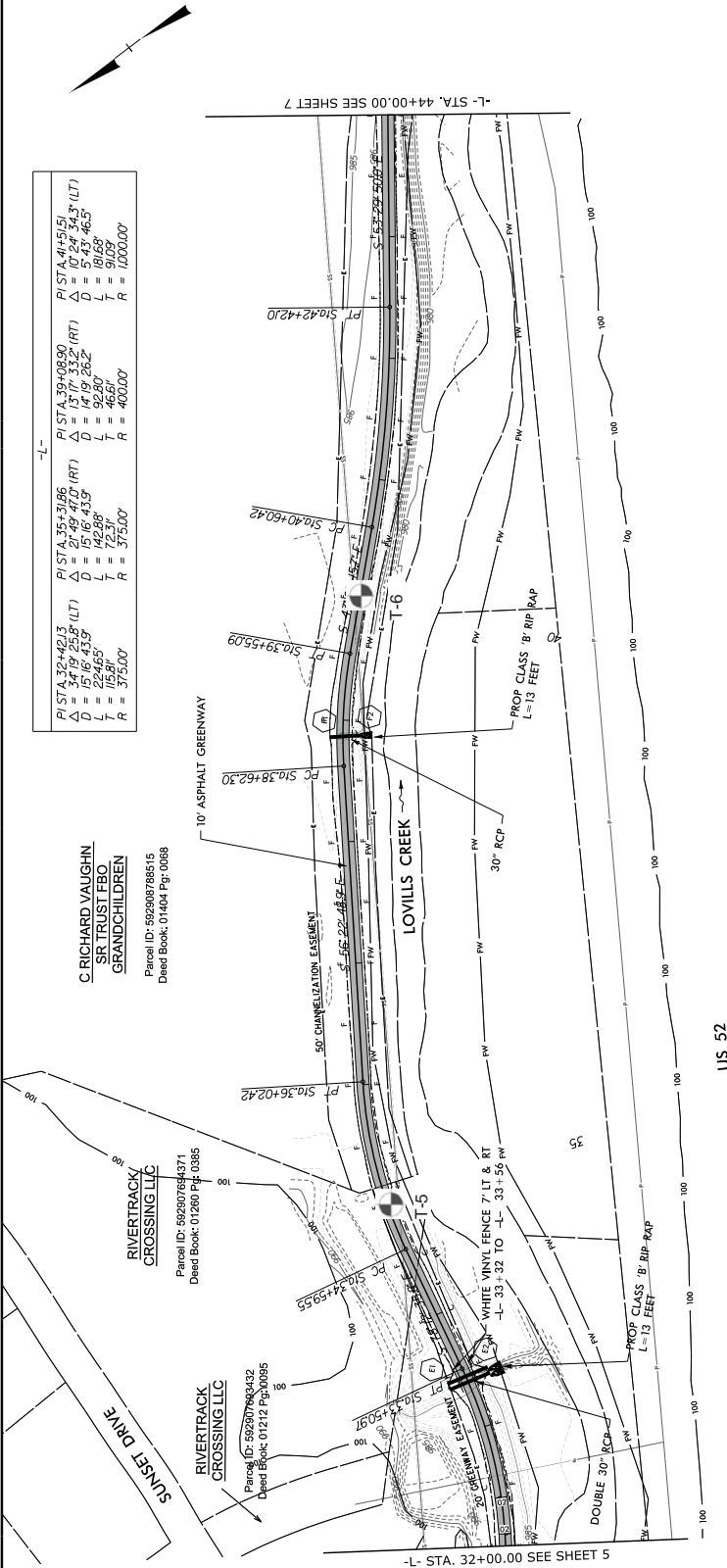
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US 52

1,000	PI = 32+50.00 EL = 987.19 VC = 60'	PI = 34+35.00 EL = 986.26' VC = 60'	PI = 35+60.00 EL = 987.12' VC = 30'	CHADLEIGH L-10-3000Z PI = 35+105.00 EL = 987.83' VC = 30'	CHADLEIGH L-10-3000Z PI = 36+50.00 EL = 987.50' VC = 30'	CHADLEIGH L-10-3000Z PI = 40+50.00 EL = 986.80' VC = 20'	CHADLEIGH L-10-3000Z PI = 42+70.00 EL = 986.07' VC = 20'	990
980	DOUBLE 30" RCP PI = 33+00.00 EL = 987.34' VC = 10'	EXISTING GRADE AT CL OF GREENWAY	CHADLEIGH L-10-3000Z PI = 35+105.00 EL = 987.83' VC = 30'	CHADLEIGH L-10-3000Z PI = 36+50.00 EL = 987.50' VC = 30'	CHADLEIGH L-10-3000Z PI = 40+50.00 EL = 986.80' VC = 20'	CHADLEIGH L-10-3000Z PI = 42+70.00 EL = 986.07' VC = 20'	980	
970	DOUBLE 30" RCP PI = 33+00.00 EL = 987.34' VC = 10'	EXISTING GRADE AT CL OF GREENWAY	CHADLEIGH L-10-3000Z PI = 35+105.00 EL = 987.83' VC = 30'	CHADLEIGH L-10-3000Z PI = 36+50.00 EL = 987.50' VC = 30'	CHADLEIGH L-10-3000Z PI = 40+50.00 EL = 986.80' VC = 20'	CHADLEIGH L-10-3000Z PI = 42+70.00 EL = 986.07' VC = 20'	970	
1,000	DOUBLE 30" RCP PI = 33+00.00 EL = 987.34' VC = 10'	EXISTING GRADE AT CL OF GREENWAY	CHADLEIGH L-10-3000Z PI = 35+105.00 EL = 987.83' VC = 30'	CHADLEIGH L-10-3000Z PI = 36+50.00 EL = 987.50' VC = 30'	CHADLEIGH L-10-3000Z PI = 40+50.00 EL = 986.80' VC = 20'	CHADLEIGH L-10-3000Z PI = 42+70.00 EL = 986.07' VC = 20'	1,000	

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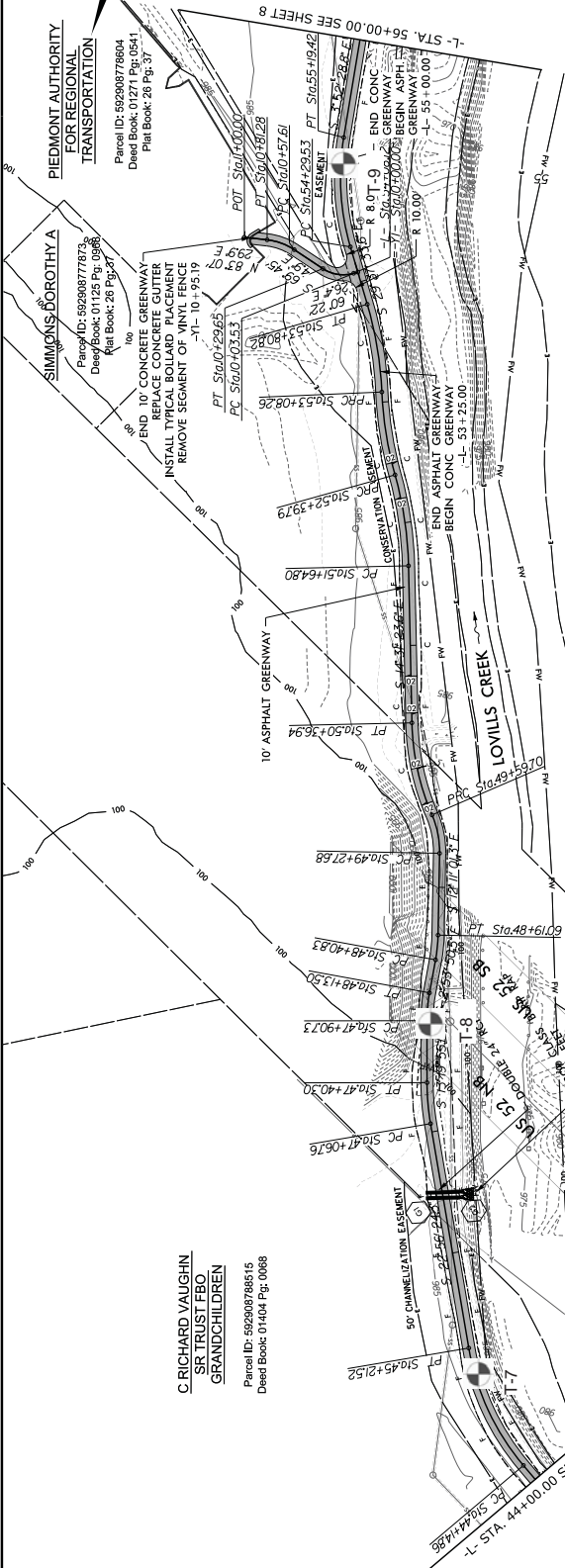
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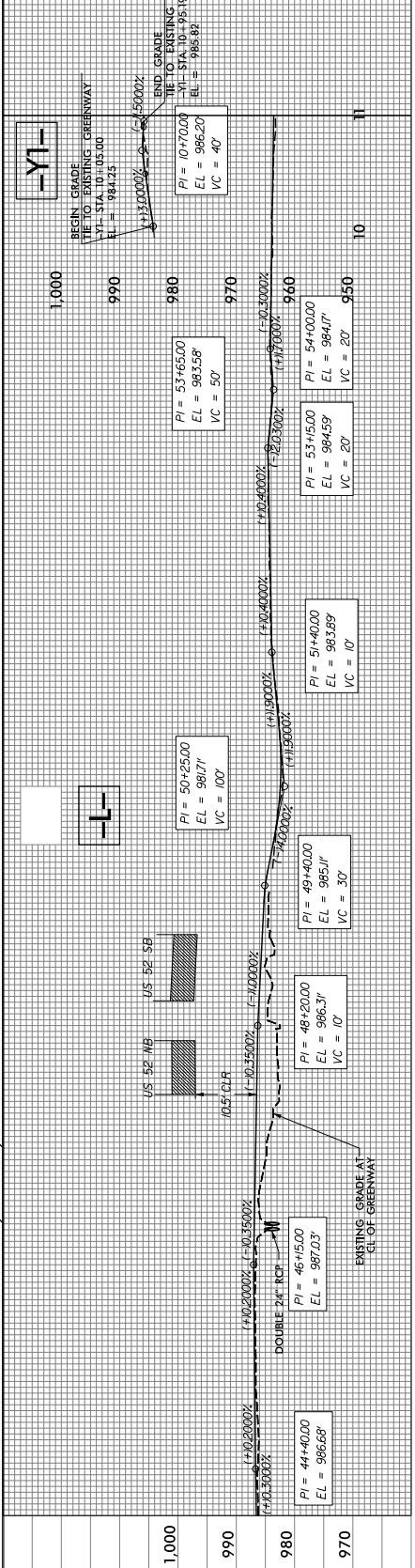
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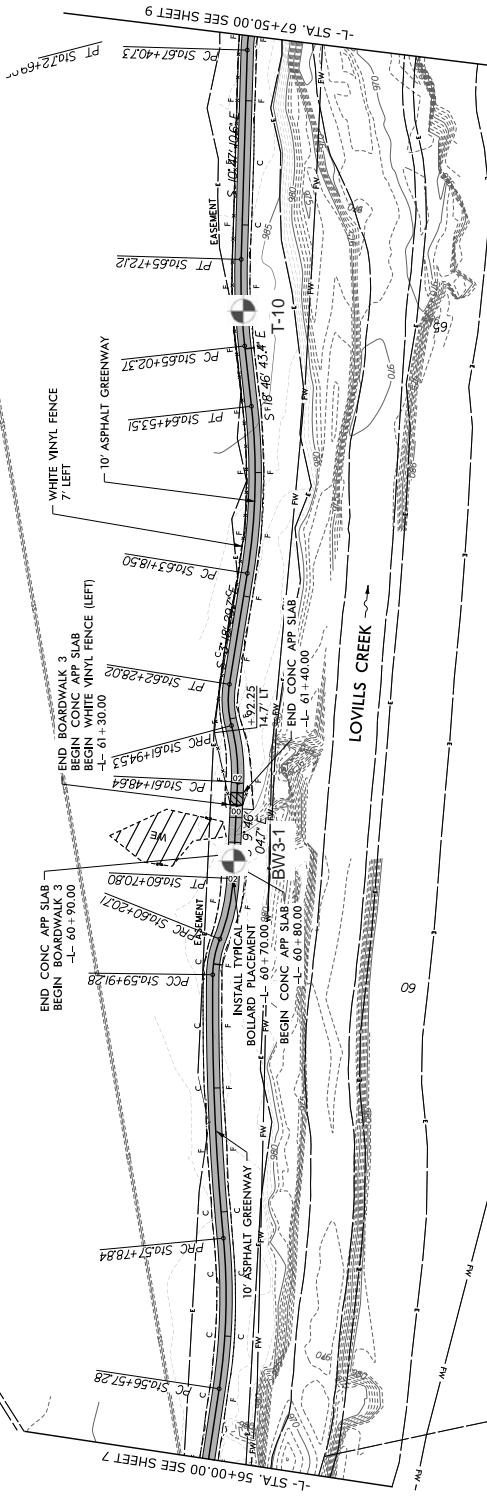
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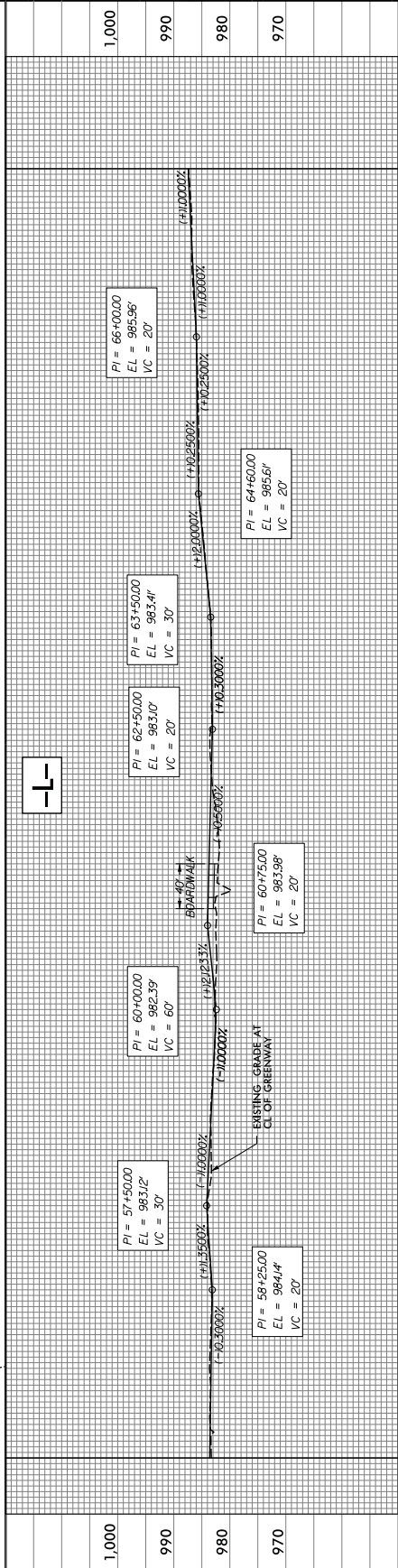
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SIMMONS DOROTHY A

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Deed Book: 01125 Pg. 0668  
Plat Book: 008 Pg. 0076



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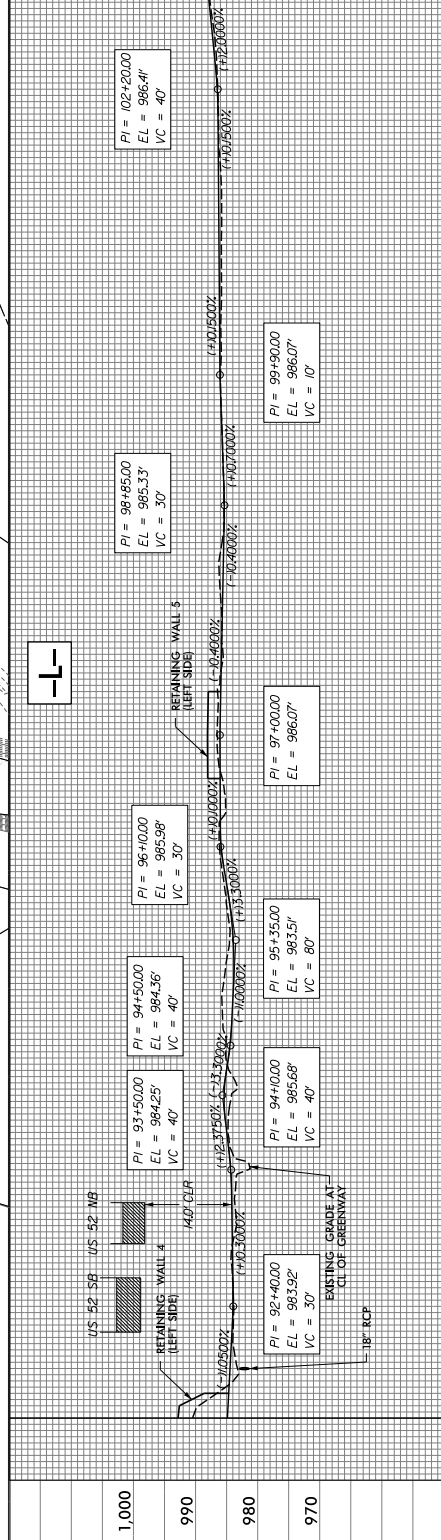
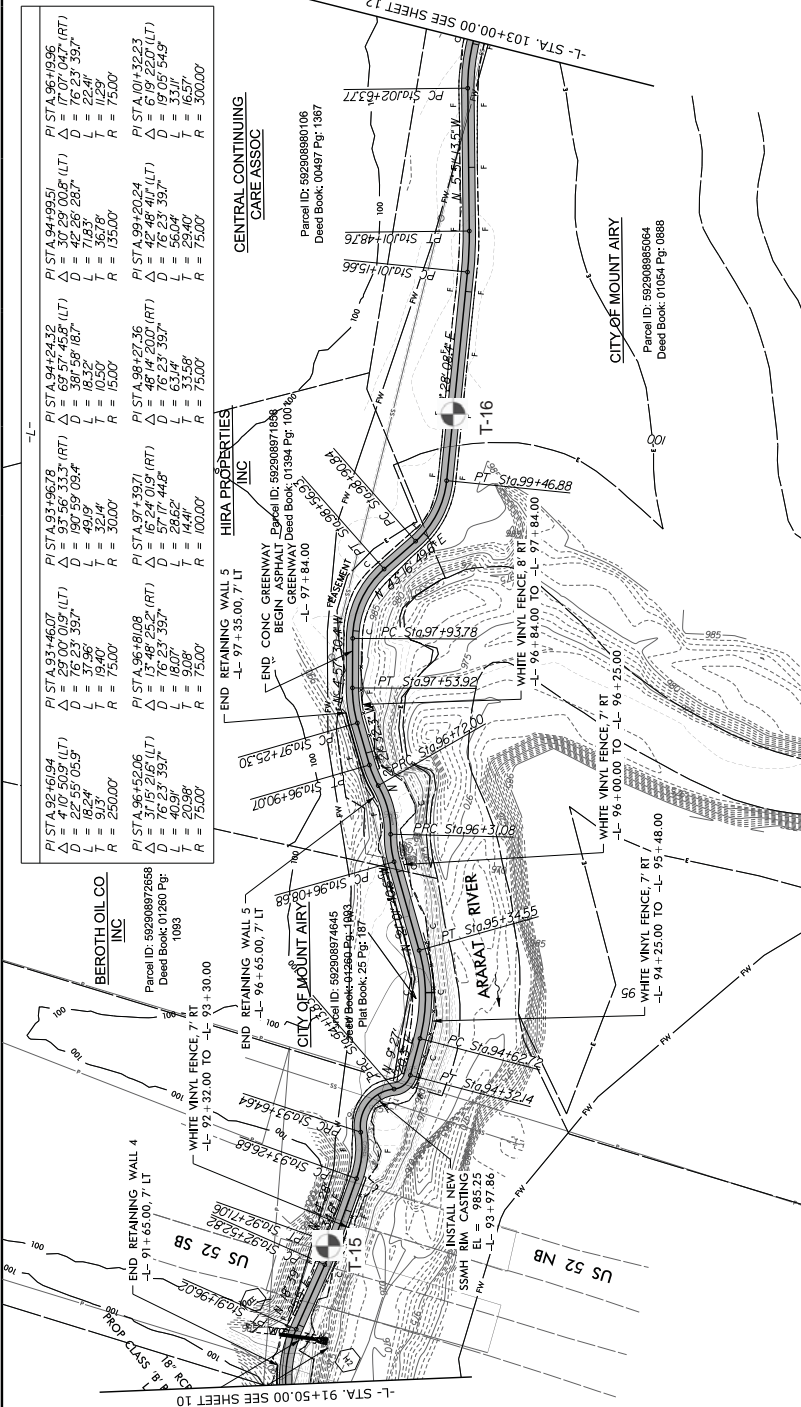
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OF ED

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Deed Book: 01218 Pg. 1052

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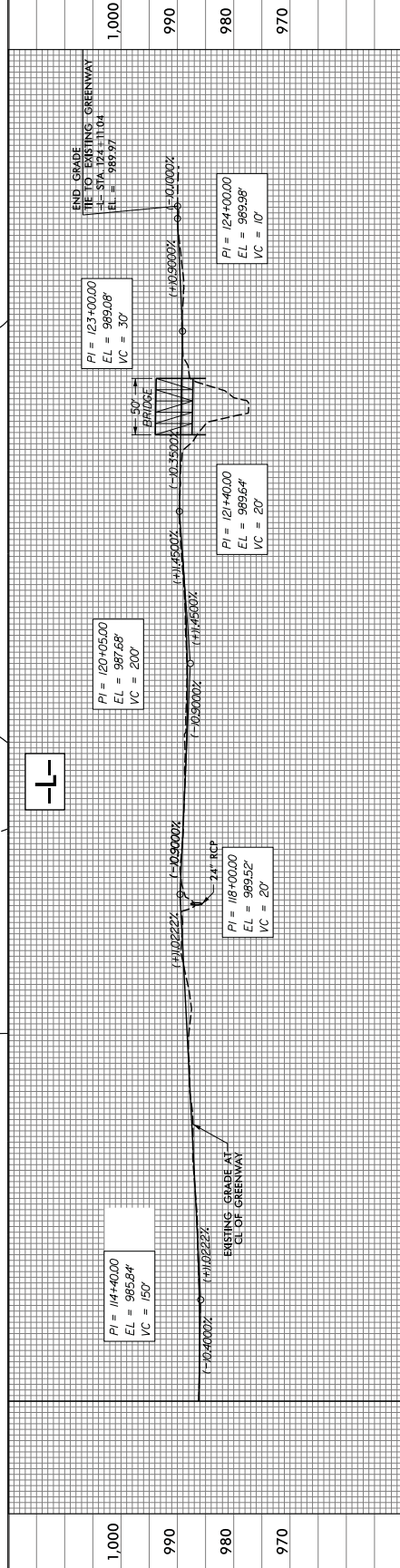
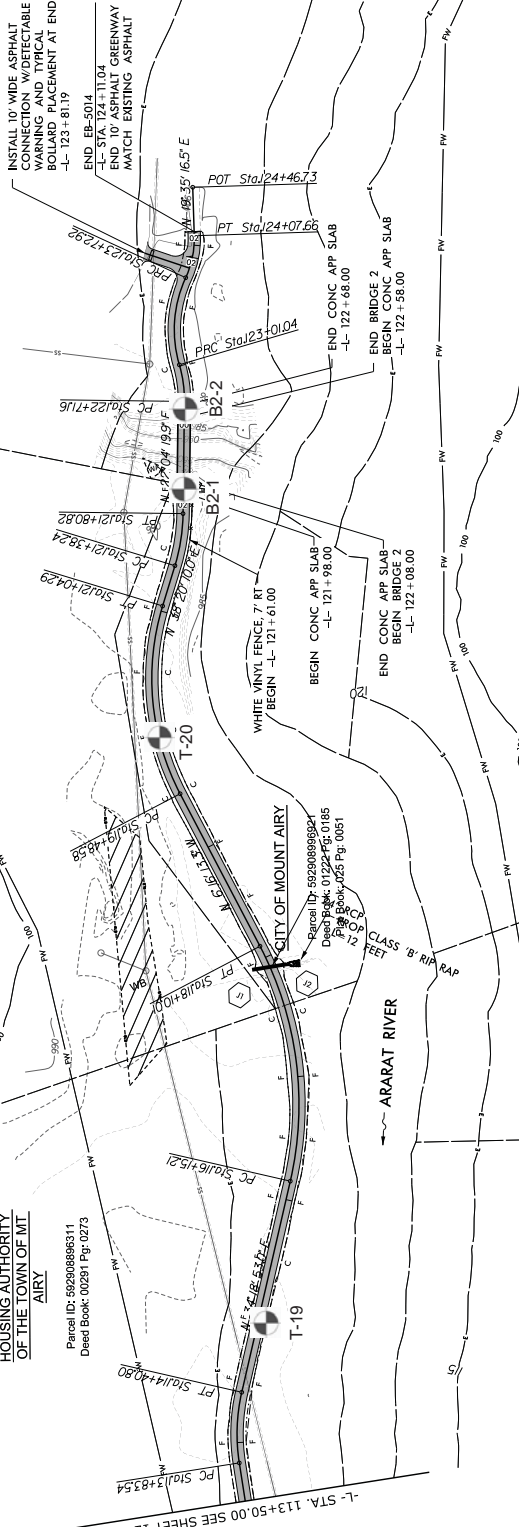
SURRY COUNTY

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Deed Book: 01312 Pg. 0352

HOUSING AUTHORITY  
OF THE TOWN OF MT.  
AIRY

Parcel ID: 50203089311  
Deed Book: 00231 Pg. 0273

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## **APPENDIX B**

BORING LOGS  
LEGEND TO SOIL DESCRIPTIONS  
DMCP TEST DATA



STEWART

# BORING LOG FOR: B1-1

PAGE 1 OF 1

<b>CLIENT</b> TOWN OF MT. AIRY	<b>PROJECT NAME</b> LOVILLS CREEK AND ARARAT RIVER GREENWAY
<b>PROJECT NUMBER</b> H13007.00	<b>LOCATION</b> MT. AIRY, NORTH CAROLINA
<b>DATE STARTED</b> 4/23/14	<b>COMPLETED</b> 4/23/14
<b>DRILLING CONTRACTOR</b> TRIGON	<b>GROUND ELEVATION</b> 986.5 ft
<b>DRILLING METHOD</b> H.S. AUGER	<b>AUGER SIZE</b> 2.25-INCH
<b>DRILL RIG</b> MOBILE B-57	<b>HAMMER TYPE</b> AUTO
<b>LOGGED BY</b> J MUESSEN	<b>NOTES:</b> GROUND SURFACE ELEVATION INTERPOLATED FROM PROVIDED TOPOGRAPHIC INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE
<b>BORING DEPTH</b> 32 ft	
<b>0-HR GWL</b> 4 ft <b>STAB. GWL</b> 2 ft <b>CAVE-IN</b> 8 ft	

DEPTH (ft)	USCS SYMBOL	MATERIAL DESCRIPTION	ELEVATION (ft)	GWL/CAVE-IN (ft)	SAMPLE DEPTH (ft) TYPE ID NUMBER	SPT BLOW COUNTS	N-VALUE (bpf)	▲ SPT N-VALUE (BPF) ▲										
								10 20 30 40 50 60 70 80 90										
								PL      MC      LL 10 20 30 40 50 60 70 80 90 <input type="checkbox"/> FINES CONTENT (%) <input type="checkbox"/>										
0.3		TOPSOIL	986.2															
3.0	SM	ALLUVIUM - LOOSE, BROWN, SILTY SAND WITH GRAVEL - MOIST	984.5	984.5	1.0 SS 1	2 2 3	5											
5.5	ML	ALLUVIUM - STIFF, GRAY, SANDY SILT WITH GRAVEL AND ROOTS - SATURATED	982.5	982.5	3.5 SS 2	4 6 7	13											
8.0	SM	RESIDUUM - DENSE, WHITE, SILTY SAND WITH ROCK FRAGMENTS - MOIST	981.0		6.0 SS 3	5 19 31	50											
		WEATHERED ROCK - SAMPLED AS WHITE ORANGE, SAND - MOIST	978.5	978.5	7.5 SS 4	31 50/6"	50/6"											
					8.5 SS 4													
					9.5 SS 4													
					13.5 SS 5	9 50/5"	50/5"											
					14.4 SS 5													
					18.5 SS 6	22 50/6"	50/6"											
					19.5 SS 6													
22.0	WR		964.5		22.0 SS 7	50/0"	50/0"											
		ROCK																
		CORE RUN #1: WHITE, FRESH, VERY HARD, MONZOGRANITE WITH MODERATELY CLOSE FRACTURES.																
		REC. = 92%, RQD = 86%																
27.0			959.5															
		ROCK																
		CORE RUN #2: WHITE, FRESH, VERY HARD, MONZOGRANITE WITH MODERATELY CLOSE FRACTURES.																
		REC. = 99%, RQD = 96%																
32.0			954.5															

ROCK CORE TERMINATED

Note: SPT Blow Counts are per 6 inches of penetration unless otherwise noted.



STEWART

# BORING LOG FOR: B1-2

PAGE 1 OF 1

<b>CLIENT</b> TOWN OF MT. AIRY	<b>PROJECT NAME</b> LOVILLS CREEK AND ARARAT RIVER GREENWAY
<b>PROJECT NUMBER</b> H13007.00	<b>LOCATION</b> MT. AIRY, NORTH CAROLINA
<b>DATE STARTED</b> 4/24/14	<b>COMPLETED</b> 4/24/14
<b>DRILLING CONTRACTOR</b> TRIGON	<b>GROUND ELEVATION</b> 986 ft
<b>DRILLING METHOD</b> H.S. AUGER	<b>AUGER SIZE</b> 2.25-INCH
<b>DRILL RIG</b> MOBILE B-57	<b>HAMMER TYPE</b> AUTO
<b>LOGGED BY</b> J MUESSEN	<b>NOTES:</b> GROUND SURFACE ELEVATION INTERPOLATED FROM PROVIDED TOPOGRAPHIC INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE
<b>BORING DEPTH</b> 22.5 ft	
<b>0-HR GWL</b> 2.5 ft <b>STAB. GWL</b> 2.5 ft <b>CAVE-IN</b> 8 ft	

DEPTH (ft)	USCS SYMBOL	MATERIAL DESCRIPTION	ELEVATION (ft)	GWL/CAVE-IN (ft)	SAMPLE DEPTH (ft) TYPE ID NUMBER	SPT BLOW COUNTS	N-VALUE (bpf)	▲ SPT N-VALUE (BPF) ▲	
								10 20 30 40 50 60 70 80 90	10 20 30 40 50 60 70 80 90
								PL MC LL	10 20 30 40 50 60 70 80 90
0.4		<b>TOPSOIL</b>	985.6						
		<b>ALLUVIUM</b> - LOOSE TO MEDIUM DENSE, BROWN, SILTY SAND - MOIST							
	SM			983.5	1.0 SS 1	1	6		
					2.5	2			
					3.5 SS 2	3	12		
					5.0	5			
5.5		<b>RESIDUUM</b> - DENSE, WHITE TAN, SILTY SAND - MOIST	980.5						
				978	6.0 SS 3	8	35		
					7.5	14			
					8.5 SS 4	21			
					10.0	11	34		
						15			
	SM				13.5 SS 5	10	37		
					15.0	14			
						23			
17.0		<b>WEATHERED ROCK</b> - SAMPLED AS WHITE, SAND - MOIST	969.0						
					18.5 SS 6	50/1"	50/1"		
					18.6				
	WR								
22.5		<b>AUGER REFUSAL</b>	963.5		22.5 SS 7	50/0"	50/0"		

Note: SPT Blow Counts are per 6 inches of penetration unless otherwise noted.



STEWART

# BORING LOG FOR: B2-1

PAGE 1 OF 1

CLIENT TOWN OF MT. AIRY PROJECT NAME LOVILLS CREEK AND ARARAT RIVER GREENWAY  
 PROJECT NUMBER H13007.00 LOCATION MT. AIRY, NORTH CAROLINA  
 DATE STARTED 4/28/14 COMPLETED 4/28/14 GROUND ELEVATION 989 ft BORING DEPTH 31.8 ft  
 DRILLING CONTRACTOR TRIGON 0-HR GWL 9 ft STAB. GWL FIAD CAVE-IN 9.5 ft  
 DRILLING METHOD H.S. AUGER AUGER SIZE 2.25-INCH NOTES: GROUND SURFACE ELEVATION INTERPOLATED FROM  
 DRILL RIG MOBILE B-57 HAMMER TYPE AUTO PROVIDED TOPOGRAPHIC INFORMATION AND SHOULD BE  
 LOGGED BY J MUESSEN CONSIDERED APPROXIMATE

DEPTH (ft)	USCS SYMBOL	MATERIAL DESCRIPTION	ELEVATION (ft)	GWL/CAVE-IN (ft)	SAMPLE DEPTH (ft) TYPE ID NUMBER	SPT BLOW COUNTS	N-VALUE (bpf)	▲ SPT N-VALUE (BPF) ▲	
								10 20 30 40 50 60 70 80 90	10 20 30 40 50 60 70 80 90
0.3		TOPSOIL	988.7						
		ALLUVIUM - VERY LOOSE AND LOOSE, BROWN, SILTY SAND - MOIST							
	ML				1.0 SS 1	1	2		
					2.5 SS 1	1			
					3.5 SS 2	1	5		
					5.0 SS 2	3			
					6.0 SS 3	2			
8.0					7.5 SS 3	1	3		
			981.0			2			
		ALLUVIUM - VERY LOOSE, BLACK-GRAY, SILTY SAND WITH GRAVEL - WET			8.5 SS 4	WOH	1		
	SM				10.0 SS 4	WOH			
12.0			977.0						
		ALLUVIUM - DENSE, GRAY, COARSE SAND WITH GRAVEL - WET			13.5 SS 5	39	46		
	SM				15.0 SS 5	23			
16.0			973.0			23			
		RESIDUUM - MEDIUM DENSE, WHITE - GRAY, SILTY SAND - MOIST TO WET			18.5 SS 6	4	21		
	SM				20.0 SS 6	11			
22.0			967.0			10			
		WEATHERED ROCK - SAMPLED AS TAN, SAND - MOIST			23.5 SS 7	32	50/6"		
					24.5 SS 7	50/6"			
					28.5 SS 8	50/4"	50/4"		
					28.8 SS 8				
31.8			957.2				50/0"		
	WR								
		AUGER REFUSAL			31.8 SS 9	50/0"	50/0"		

Note: SPT Blow Counts are per 6 inches of penetration unless otherwise noted.



STEWART

# BORING LOG FOR: B2-2

PAGE 1 OF 1

CLIENT TOWN OF MT. AIRY PROJECT NAME LOVILLS CREEK AND ARARAT RIVER GREENWAY  
 PROJECT NUMBER H13007.00 LOCATION MT. AIRY, NORTH CAROLINA  
 DATE STARTED 4/25/14 COMPLETED 4/25/14 GROUND ELEVATION 989 ft BORING DEPTH 33.5 ft  
 DRILLING CONTRACTOR TRIGON 0-HR GWL DRY STAB. GWL 11 ft CAVE-IN 18 ft  
 DRILLING METHOD H.S. AUGER AUGER SIZE 2.25-INCH NOTES: GROUND SURFACE ELEVATION INTERPOLATED FROM  
 DRILL RIG MOBILE B-57 HAMMER TYPE AUTO PROVIDED TOPOGRAPHIC INFORMATION AND SHOULD BE  
 LOGGED BY J MUESSEN CONSIDERED APPROXIMATE

DEPTH (ft)	USCS SYMBOL	MATERIAL DESCRIPTION	ELEVATION (ft)	GWL/CAVE-IN (ft)	SAMPLE DEPTH (ft) TYPE ID NUMBER	SPT BLOW COUNTS	N-VALUE (bpf)	▲ SPT N-VALUE (BPF) ▲										
								10 20 30 40 50 60 70 80 90 PL MC LL 10 20 30 40 50 60 70 80 90 <input type="checkbox"/> FINES CONTENT (%) <input type="checkbox"/>										
0.3		TOPSOIL	988.7															
		ALLUVIUM - LOOSE TO VERY LOOSE, BROWN, SILTY SAND - MOIST																
					1.0 SS 1	1	5											
					2.5 SS 1	3												
					3.5 SS 2	1	5											
					5.0 SS 2	2												
					6.0 SS 3	1	4											
					7.5 SS 3	2												
					8.5 SS 4	1	2											
					10.0 SS 4	1	2											
12.0			977.0															
		ALLUVIUM - MEDIUM DENSE, RED-BROWN, SAND WITH GRAVEL - SATURATED																
					13.5 SS 5	3	11											
					15.0 SS 5	4												
17.0			972.0															
		WEATHERED ROCK - SAMPLED AS WHITE, SILTY SAND - MOIST																
					18.5 SS 6	50/2"	50/2"											
					18.7 SS 6													
23.5			965.5															
		ROCK																
		CORE RUN #1: TAN-WHITE, MODERATELY SEVERE WEATHERED, MODERATELY HARD, MONZOGANITE WITH MODERATELY CLOSE FRACTURING.																
		REC. = 81%, RQD = 75%																
28.5			960.5															
		ROCK																
		CORE RUN #2: TAN-WHITE, MODERATELY TO MODERATELY SEVERELY WEATHERED, MODERATELY HARD, MONZOGANITE WITH MODERATELY CLOSE FRACTURING.																
		REC. = 84%, RQD = 83%																
33.5			955.5															
		ROCK CORE TERMINATED																

Note: SPT Blow Counts are per 6 inches of penetration unless otherwise noted.





STEWART

# BORING LOG FOR: BW1

PAGE 1 OF 1

<b>CLIENT</b> TOWN OF MT. AIRY	<b>PROJECT NAME</b> LOVILLS CREEK AND ARARAT RIVER GREENWAY
<b>PROJECT NUMBER</b> H13007.00	<b>LOCATION</b> MT. AIRY, NORTH CAROLINA
<b>DATE STARTED</b> 4/24/14 <b>COMPLETED</b> 4/24/14	<b>GROUND ELEVATION</b> 991 ft <b>BORING DEPTH</b> 20 ft
<b>DRILLING CONTRACTOR</b> TRIGON	<b>0-HR GWL</b> DRY <b>STAB. GWL</b> DRY <b>CAVE-IN</b> 12 ft
<b>DRILLING METHOD</b> H.S. AUGER <b>AUGER SIZE</b> 2.25-INCH	<b>NOTES:</b> GROUND SURFACE ELEVATION INTERPOLATED FROM PROVIDED TOPOGRAPHIC INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE
<b>DRILL RIG</b> MOBILE B-57 <b>HAMMER TYPE</b> AUTO	
<b>LOGGED BY</b> J MUESSEN	

DEPTH (ft)	USCS SYMBOL	MATERIAL DESCRIPTION	ELEVATION (ft)	GWL/CAVE-IN (ft)	SAMPLE DEPTH (ft) TYPE ID NUMBER	SPT BLOW COUNTS	N-VALUE (bpf)	▲ SPT N-VALUE (BPF) ▲										
								<div> <div>102030405060708090</div> <div>PLMCLL</div> <div>102030405060708090</div> </div>										
								□ FINES CONTENT (%) □										
0.4		<b>TOPSOIL</b>	990.6															
3.0	ML	<b>FILL</b> - FIRM, WHITE - BROWN, SANDY SILT WITH ROCK FRAGMENTS - MOIST	988.0		1.0 2.5 SS 1	12 4 2	6											
5.5	ML	<b>ALLUVIUM</b> - SOFT, BROWN, SANDY SILT - MOIST	985.5		3.5 5.0 SS 2	1 1 2	3											
8.0	SM	<b>ALLUVIUM</b> - VERY SOFT, BROWN, SILTY SAND - MOIST	983.0		6.0 7.5 SS 3	1 1 1	2											
11.0	ML	<b>ALLUVIUM</b> - VERY SOFT, BROWN, CLAYEY SILTY SAND WITH ROOTS - MOIST	980.0		8.5 10.0 SS 4	WOH WOH WOH	WOH											
20.0	SM	<b>RESIDUUM</b> - DENSE, WHITE, SILTY SAND - MOIST	971.0	979	13.5 15.0 SS 5	11 19 19	19											
					18.5 20.0 SS 6	5 17 31	31											

BORING TERMINATED





STEWART

# BORING LOG FOR: BW2

PAGE 1 OF 1

<b>CLIENT</b> TOWN OF MT. AIRY	<b>PROJECT NAME</b> LOVILLS CREEK AND ARARAT RIVER GREENWAY
<b>PROJECT NUMBER</b> H13007.00	<b>LOCATION</b> MT. AIRY, NORTH CAROLINA
<b>DATE STARTED</b> 4/24/14 <b>COMPLETED</b> 4/24/14	<b>GROUND ELEVATION</b> 986 ft <b>BORING DEPTH</b> 18.5 ft
<b>DRILLING CONTRACTOR</b> TRIGON	<b>0-HR GWL</b> 3 ft <b>STAB. GWL</b> DRY <b>CAVE-IN</b> 2.5 ft
<b>DRILLING METHOD</b> H.S. AUGER <b>AUGER SIZE</b> 2.25-INCH	<b>NOTES:</b> GROUND SURFACE ELEVATION INTERPOLATED FROM PROVIDED TOPOGRAPHIC INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE
<b>DRILL RIG</b> MOBILE B-57 <b>HAMMER TYPE</b> AUTO	
<b>LOGGED BY</b> J MUESSEN	

DEPTH (ft)	USCS SYMBOL	MATERIAL DESCRIPTION	ELEVATION (ft)	GWL/CAVE-IN (ft)	SAMPLE DEPTH (ft) TYPE ID NUMBER	SPT BLOW COUNTS	N-VALUE (bpf)	▲ SPT N-VALUE (BPF) ▲										
								10 20 30 40 50 60 70 80 90										
								PL      MC      LL 10 20 30 40 50 60 70 80 90 <input type="checkbox"/> FINES CONTENT (%) <input type="checkbox"/>										
0.4		TOPSOIL	985.6															
3.0	SM	ALLUVIUM - LOOSE, BROWN, SILTY SAND - MOIST			1.0 SS 1	3 4 2	6											
5.5	SM	ALLUVIUM - MEDIUM DENSE, GRAY - BROWN, SILTY SAND WITH SOME GRAVEL AND ROOTS - SATURATED	983.0		2.5 SS 1													
					3.5 SS 2	3 8 7	15											
			980.5		5.0 SS 2													
		ALLUVIUM - MEDIUM DENSE, TAN AND BROWN, COARSE SANDY GRAVEL - SATURATED			6.0 SS 3	8 9 12	21											
					7.5 SS 3													
	GW				8.5 SS 4	13 12 9	21											
					10.0 SS 4													
12.0			974.0															
	SM	RESIDUUM - MEDIUM DENSE, TAN, SAND - MOIST			13.5 SS 5	7 9 9	18											
16.0			970.0		15.0 SS 5													
		WEATHERED ROCK - SAMPLED AS TAN, SAND - MOIST																
18.5	WR		967.5		18.5 SS 6	50/0"	50/0"											

BORING TERMINATED

Note: SPT Blow Counts are per 6 inches of penetration unless otherwise noted.



STEWART

# BORING LOG FOR: BW3

PAGE 1 OF 1

CLIENT TOWN OF MT. AIRY PROJECT NAME LOVILLS CREEK AND ARARAT RIVER GREENWAY  
 PROJECT NUMBER H13007.00 LOCATION MT. AIRY, NORTH CAROLINA  
 DATE STARTED 4/28/14 COMPLETED 4/28/14 GROUND ELEVATION 983 ft BORING DEPTH 30 ft  
 DRILLING CONTRACTOR TRIGON 0-HR GWL 8.5 ft STAB. GWL FIAD CAVE-IN 12.5 ft  
 DRILLING METHOD H.S. AUGER AUGER SIZE 2.25-INCH NOTES: GROUND SURFACE ELEVATION INTERPOLATED FROM  
 DRILL RIG MOBILE B-57 HAMMER TYPE AUTO PROVIDED TOPOGRAPHIC INFORMATION AND SHOULD BE  
 LOGGED BY J MUESSEN CONSIDERED APPROXIMATE

DEPTH (ft)	USCS SYMBOL	MATERIAL DESCRIPTION	ELEVATION (ft)	GWL/CAVE-IN (ft)	SAMPLE DEPTH (ft) TYPE ID NUMBER	SPT BLOW COUNTS	N-VALUE (bpf)	▲ SPT N-VALUE (BPF) ▲																		
								10 20 30 40 50 60 70 80 90																		
								PL MC LL																		
								10 20 30 40 50 60 70 80 90																		
									□ FINES CONTENT (%) □									10 20 30 40 50 60 70 80 90								
0.3	ML	TOPSOIL	982.7																							
3.0		FILL - FIRM, GRAY, SANDY SILT WITH ROOTLETS - MOIST	980.0		1.0 2.5	SS 1	2 3 4	7	▲																	
	SM	ALLUVIUM - VERY LOOSE, BROWN, SILTY SAND - MOIST			3.5 5.0	SS 2	1 1 1	2	▲																	
5.5			ALLUVIUM - VERY SOFT, GRAY, SANDY SILT - WET	977.5		6.0 7.5	SS 3	WOH WOH WOH	WOH																	
	ML			974.5	8.5 10.0	SS 4	WOH WOH 1	1	▲																	
12.0				971.0																						
	SM	ALLUVIUM - LOOSE, BLACK, SILTY SAND WITH ROOTS AND GRAVEL - WET		970.5	13.5 15.0	SS 5	WOH 1 7	8	▲																	
			COLOR CHANGED TO GRAY IN SS-6			18.5 20.0	SS 6	2 8 6	14	▲																
22.0			961.0																							
	SM	RESIDIUM - MEDIUM DENSE TO DENSE, TAN, SAND - MOIST			23.5 25.0	SS 7	5 11 15	26	▲																	
30.0				953.0		28.5 30.0	SS 8	11 13 20	33	▲																
BORING TERMINATED																										

Note: SPT Blow Counts are per 6 inches of penetration unless otherwise noted.



STEWART

# BORING LOG FOR: RW1

PAGE 1 OF 1

<b>CLIENT</b> TOWN OF MT. AIRY	<b>PROJECT NAME</b> LOVILLS CREEK AND ARARAT RIVER GREENWAY
<b>PROJECT NUMBER</b> H13007.00	<b>LOCATION</b> MT. AIRY, NORTH CAROLINA
<b>DATE STARTED</b> 4/28/14	<b>COMPLETED</b> 4/28/14
<b>DRILLING CONTRACTOR</b> TRIGON	<b>GROUND ELEVATION</b> 981 ft
<b>DRILLING METHOD</b> H.S. AUGER	<b>AUGER SIZE</b> 2.25-INCH
<b>DRILL RIG</b> MOBILE B-57	<b>HAMMER TYPE</b> AUTO
<b>LOGGED BY</b> J MUESSEN	<b>NOTES:</b> GROUND SURFACE ELEVATION INTERPOLATED FROM PROVIDED TOPOGRAPHIC INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE
<b>BORING DEPTH</b> 20 ft	
<b>0-HR GWL</b> 13 ft <b>STAB. GWL</b> FIAD <b>CAVE-IN</b> 14 ft	

DEPTH (ft)	USCS SYMBOL	MATERIAL DESCRIPTION	ELEVATION (ft)	GWL/CAVE-IN (ft)	SAMPLE DEPTH (ft) TYPE ID NUMBER	SPT BLOW COUNTS	N-VALUE (bpf)	▲ SPT N-VALUE (BPF) ▲																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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		FILL - SOFT, BROWN, SANDY SILT - MOIST			1.0	SS 1	1 2	4	▲																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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BORING TERMINATED



STEWART

# BORING LOG FOR: T4a

PAGE 1 OF 1

CLIENT TOWN OF MT. AIRY PROJECT NAME LOVILLS CREEK AND ARARAT RIVER GREENWAY  
 PROJECT NUMBER H13007.00 LOCATION MT. AIRY, NORTH CAROLINA  
 DATE STARTED 4/24/14 COMPLETED 4/24/14 GROUND ELEVATION 998 ft BORING DEPTH 24.4 ft  
 DRILLING CONTRACTOR TRIGON 0-HR GWL DRY STAB. GWL DRY CAVE-IN 20 ft  
 DRILLING METHOD H.S. AUGER AUGER SIZE 2.25-INCH NOTES: GROUND SURFACE ELEVATION INTERPOLATED FROM  
 DRILL RIG MOBILE B-57 HAMMER TYPE AUTO PROVIDED TOPOGRAPHIC INFORMATION AND SHOULD BE  
 LOGGED BY J MUESSEN CONSIDERED APPROXIMATE

DEPTH (ft)	USCS SYMBOL	MATERIAL DESCRIPTION	ELEVATION (ft)	GWL/CAVE-IN (ft)	SAMPLE DEPTH (ft) TYPE ID NUMBER	SPT BLOW COUNTS	N-VALUE (bpf)	▲ SPT N-VALUE (BPF) ▲																			
								10 20 30 40 50 60 70 80 90																			
								PL MC LL																			
								10 20 30 40 50 60 70 80 90																			
								□ FINES CONTENT (%) □																			
								10 20 30 40 50 60 70 80 90																			
0.3	ML	TOPSOIL	997.7		1.0 SS 1	2 5 5	10																				
		FILL - FIRM TO STIFF, BROWN, SANDY SILT WITH GRAVEL - MOIST		2.5					▲																		
				3.5 SS 2	2 2 3	5	▲																				
				5.0																							
				6.0 SS 3	3 3 4	7	▲																				
				7.5																							
				8.5 SS 4	2 5 9	14	▲																				
				10.0					▲																		
12.0				986.0																							
		SM	RESIDUUM - MEDIUM DENSE TO DENSE, GRAY, SILTY SAND - MOIST			13.5 SS 5	3 5 6	11	▲																		
				15.0																							
			COLOR CHANGED TO WHITE IN SS-6		18.5 SS 6	18 21 16	37	▲																			
				976.0	978.77777	20.0			▲																		
22.0																											
	WR	WEATHERED ROCK - SAMPLED AS WHITE, SAND - MOIST			23.5 SS 7	24 50/5"	50/5"																				
24.4			973.6		24.4																						

BORING TERMINATED

Note: SPT Blow Counts are per 6 inches of penetration unless otherwise noted.



STEWART

# BORING LOG FOR: RW4

PAGE 1 OF 1

CLIENT	TOWN OF MT. AIRY	PROJECT NAME	LOVILLS CREEK AND ARARAT RIVER GREENWAY
PROJECT NUMBER	H13007.00	LOCATION	MT. AIRY, NORTH CAROLINA
DATE STARTED	04/04/14	COMPLETED	04/04/14
DRILLING CONTRACTOR		GROUND ELEVATION	985 ft
DRILLING METHOD	HAND AUGER	AUGER SIZE	
DRILL RIG		HAMMER TYPE	
LOGGED BY	J MUESSEN	0-HR GWL	DRY
		STAB. GWL	FIAD
		CAVE-IN	FIAD
		NOTES: GROUND SURFACE ELEVATION INTERPOLATED FROM PROVIDED TOPOGRAPHIC INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE	

DEPTH (ft)	USCS SYMBOL	MATERIAL DESCRIPTION	ELEVATION (ft)	GWL/CAVE-IN (ft)	SAMPLE DEPTH (ft) TYPE ID NUMBER	SPT BLOW COUNTS	N-VALUE (bpf)	▲ SPT N-VALUE (BPF) ▲										
								10 20 30 40 50 60 70 80 90										
								PL MC LL										
								10 20 30 40 50 60 70 80 90										
0.3		TOPSOIL	984.7															
2.0	ML	FILL - BROWN, SANDY SILT WITH ROCK FRAGMENTS - MOIST	983.0															

HAND AUGER REFUSAL ON DEBRIS IN FILL

# UNIFIED SOIL CLASSIFICATION (ASTM D-2487)

MATERIAL TYPES	CRITERIA FOR ASSIGNING SOIL GROUP NAMES			GROUP SYMBOL	SOIL GROUP NAMES & LEGEND	
COARSE-GRAINED SOILS > 50% RETAINED ON NO. 200 SIEVE	GRAVELS  >50% OF COARSE FRACTION RETAINED ON NO 4. SIEVE	CLEAN GRAVELS <5% FINES	Cu>4 AND 1<Cc<3	GW	WELL-GRADED GRAVEL	
			Cu>4 AND 1>Cc>3	GP	POORLY-GRADED GRAVEL	
		GRAVELS WITH FINES >12% FINES	FINES CLASSIFY AS ML OR CL	GM	SILTY GRAVEL	
			FINES CLASSIFY AS CL OR CH	GC	CLAYEY GRAVEL	
	SANDS  >50% OF COARSE FRACTION PASSES ON NO 4. SIEVE	CLEAN SANDS <5% FINES	Cu>6 AND 1<Cc<3	SW	WELL-GRADED SAND	
			Cu>6 AND 1>Cc>3	SP	POORLY-GRADED SAND	
		SANDS AND FINES >12% FINES	FINES CLASSIFY AS ML OR CL	SM	SILTY SAND	
			FINES CLASSIFY AS CL OR CH	SC	CLAYEY SAND	
FINE-GRAINED SOILS > 50% PASSES NO. 200 SIEVE	SILTS AND CLAYS  LIQUID LIMIT<50	INORGANIC	PI>7 AND PLOTS>"A" LINE	CL	LOW PLASTICITY (LEAN) CLAY	
			PI>4 AND PLOTS<"A" LINE	ML	LOW PLASTICITY SILT	
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OL	ORGANIC CLAY OR SILT	
	SILTS AND CLAYS  LIQUID LIMIT>50	INORGANIC	PI PLOTS >"A" LINE	CH	HIGH PLASTICITY (FAT) CLAY	
			PI PLOTS <"A" LINE	MH	HIGH ELASTICITY SILT	
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OH	ORGANIC CLAY OR SILT	
HIGHLY ORGANIC SOILS		PRIMARILY ORGANIC MATTER, DARK IN COLOR, AND ORGANIC ODOR		PT	PEAT	

## MATERIAL TYPES ENCOUNTERED ONSITE

	Alluvium		Bedrock
	Fill		Silty Sand (SM)
	Topsoil / Organic Layer		Weathered Rock

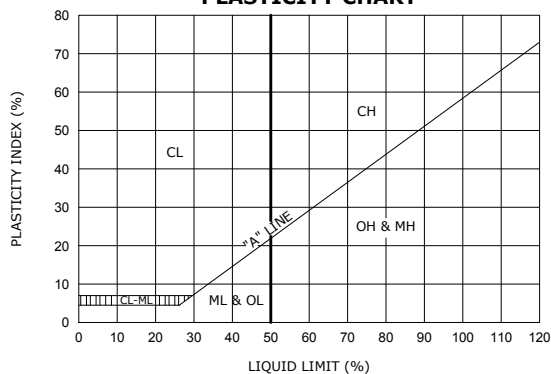
## SAMPLE TYPES

	Split Spoon
--	-------------

## ADDITIONAL ABBREVIATIONS & SYMBOLS

SPT - STANDARD PENETRATION TEST	M - MOIST
BPF - BLOWS PER FOOT	W - WET
PL - PLASTIC LIMIT	S - SATURATED
LL - LIQUID LIMIT	SL - SLIGHTLY
MC - MOISTURE CONTENT	
SS - SPLIT SPOON	
GWL - GROUNDWATER LEVEL	
USCS - UNIFIED SOIL CLASSIFICATION SYSTEM	O-HR GROUNDWATER LEVEL
WOH - WEIGHT OF HAMMER	STABILIZED GROUNDWATER LEVEL
WOR - WEIGHT OF RODS	
FIAD - FILLED-IN AFTER DRILLING	CAVE-IN LEVEL (AT LAST GWL READING)

## PLASTICITY CHART



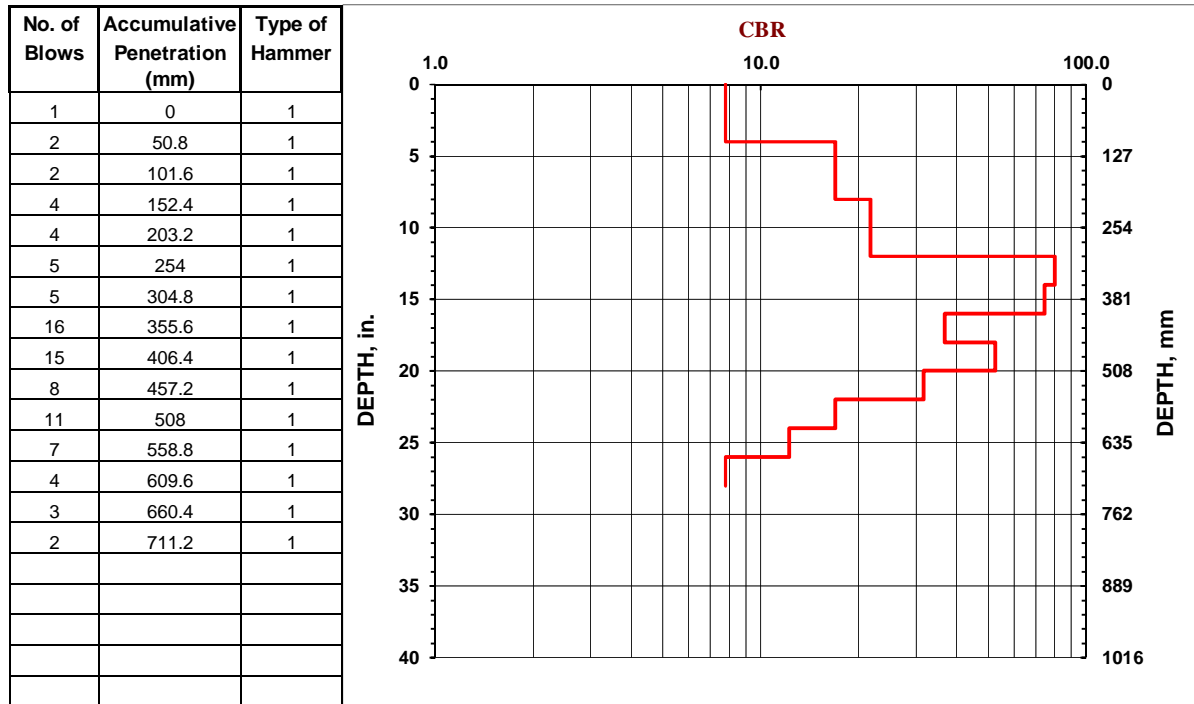
## PENETRATION RESISTANCE (RECORDED AS BLOWS PER 6 IN.)

SAND & GRAVEL		SILT & CLAY		
RELATIVE DENSITY	BLOWS/FOOT*	CONSISTENCY	BLOWS/FOOT*	COMPRESSIVE STRENGTH (TSF)
VERY LOOSE	0 - 4	VERY SOFT	0 - 2	0 - 0.25
LOOSE	5 - 10	SOFT	3 - 4	0.26 - 0.50
MEDIUM DENSE	11 - 30	MEDIUM STIFF (FIRM)	5 - 8	0.51 - 1.0
DENSE	31 - 50	STIFF	9 - 15	1.1 - 2.0
VERY DENSE	OVER 50	VERY STIFF	16 - 30	2.1 - 4.0
		HARD	31 - 50	OVER 4.0
		VERY HARD	OVER 50	

NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D. (1-3/8 INCH I.D.) SPLIT-BARREL SAMPLER THE LAST 12 INCHES OF AN 18-INCH DRIVE (ASTM-1586 STANDARD PENETRATION TEST).

## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>T-1</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~10+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/3/2014</u>



Hammer Type:

1 = 17.6 lb

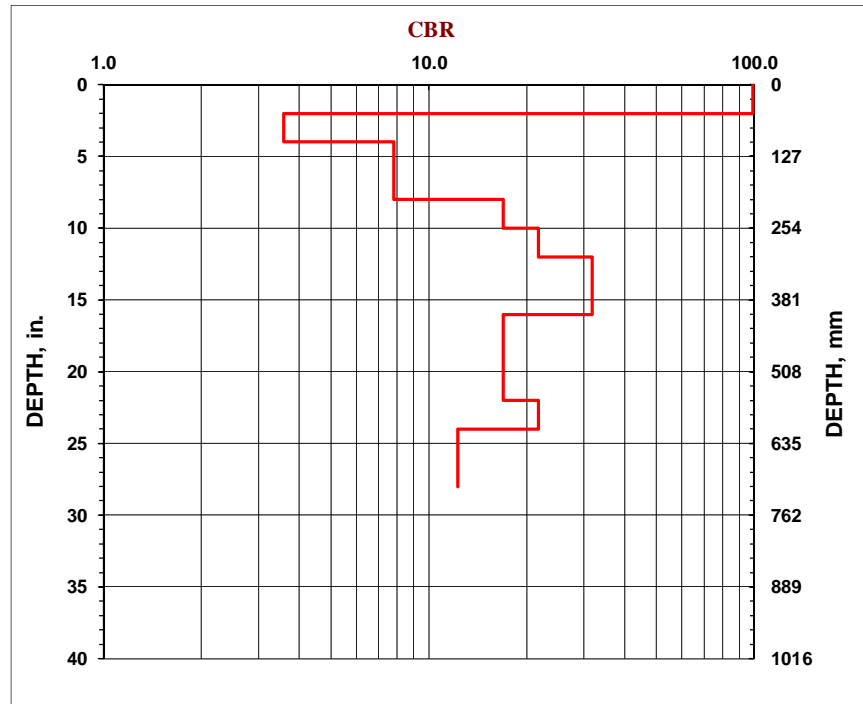
2 = 10.1 lb

Depth	Depth	Classification
0	0.33	Topsoil - 4 Inches
0.33	3	Brown, Sandy SILT (ML) with Rock Fragments - Moist
3		Hand Auger Terminated (Encountered Rock)

## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>T-2</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~15+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/3/2014</u>

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
1	0	1
0	50.8	1
1	101.6	1
2	152.4	1
2	203.2	1
4	254	1
5	304.8	1
7	355.6	1
7	406.4	1
4	457.2	1
4	508	1
4	558.8	1
5	609.6	1
3	660.4	1
3	711.2	1



Hammer Type:

1 = 17.6 lb

2 = 10.1 lb

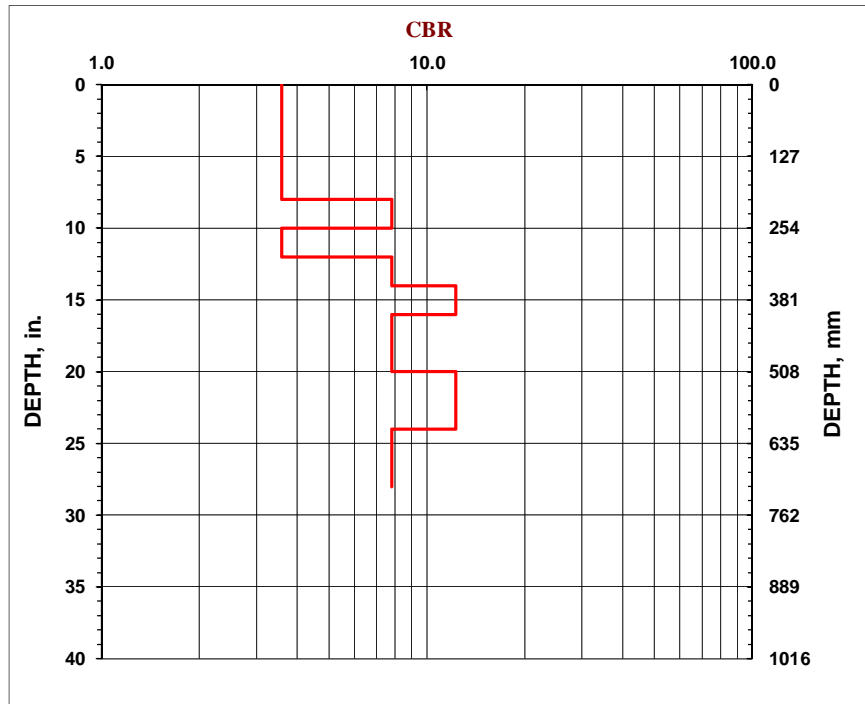
Depth	Depth	Classification
0	0.35	Topsoil - 4.5 Inches
0.35	1	Tan, Clayey Sandy SILT (ML) - Moist with Rock Fragments (3" rock)
1	4	Red, Sandy SILT (ML) with Rock Fragments and Fat Clay Seams- Moist
4		Hand Auger Terminated



## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>T-3</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~20+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/3/2014</u>

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
1	0	1
1	50.8	1
1	101.6	1
1	152.4	1
1	203.2	1
2	254	1
1	304.8	1
2	355.6	1
3	406.4	1
2	457.2	1
2	508	1
3	558.8	1
3	609.6	1
2	660.4	1
2	711.2	1



Hammer Type:

1 = 17.6 lb

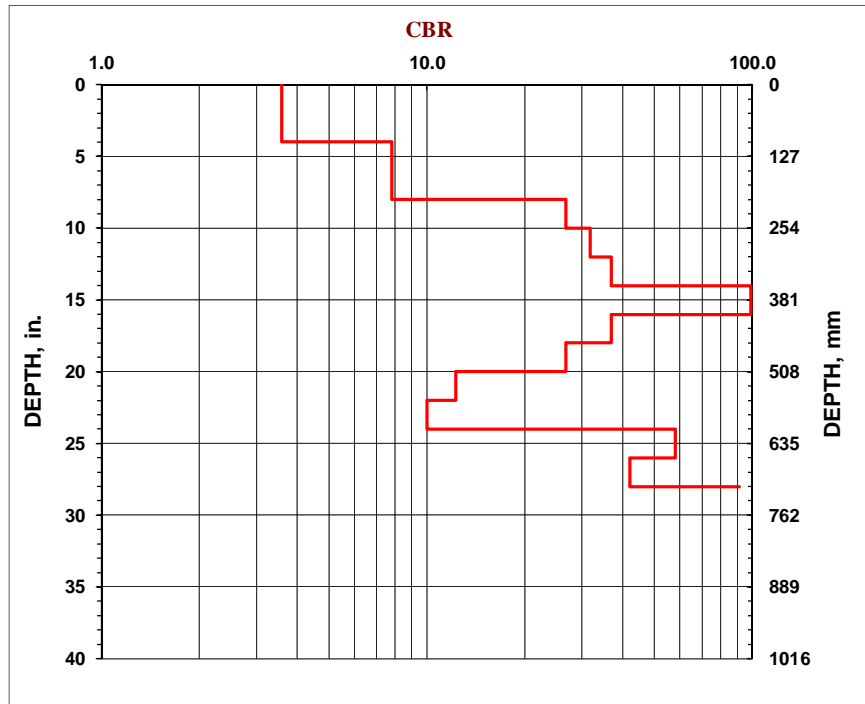
2 = 10.1 lb

Depth	Depth	Classification
0	0.4	Topsoil - 4 Inches
0.4	4	Brown, Sand (SM) with Silt - Moist
4		Hand Auger Terminated

## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>T-4</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~28+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/3/2014</u>

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
1	0	1
1	50.8	1
1	101.6	1
2	152.4	1
2	203.2	1
6	254	1
7	304.8	1
8	355.6	1
43	406.4	1
8	457.2	2
12	508	2
6	558.8	2
5	609.6	2
24	660.4	2
18	711.2	2



Hammer Type:

1 = 17.6 lb

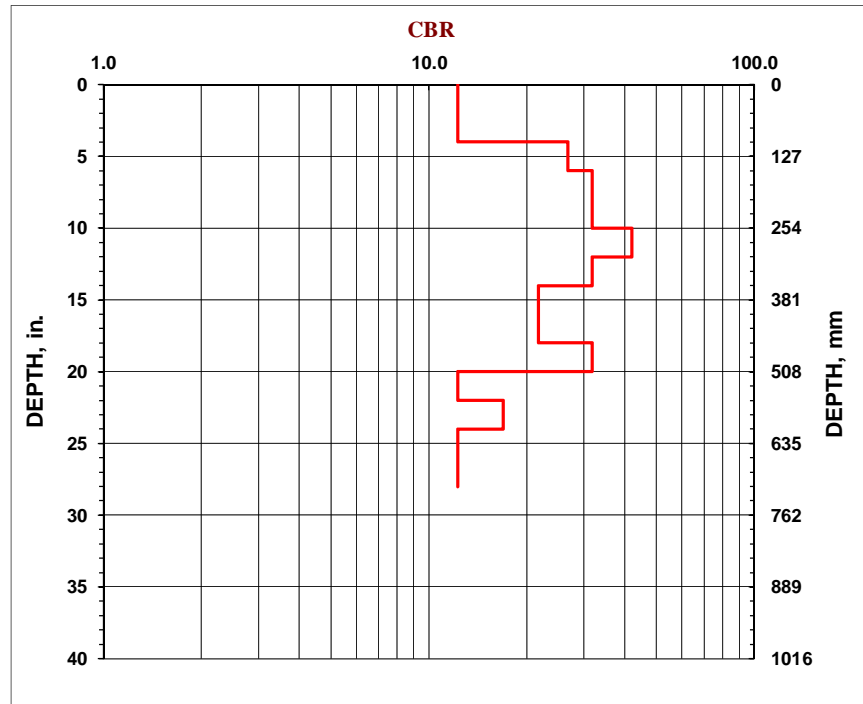
2 = 10.1 lb

Depth	Depth	Classification
0	0.6	Topsoil - 7 Inches
0.6		Hand Auger Refusal due to Rocks
		Offset 15 feet and encountered same issue

## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>T-5</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~35+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/3/2014</u>

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
1	0	1
3	50.8	1
3	101.6	1
6	152.4	1
7	203.2	1
7	254	1
9	304.8	1
7	355.6	1
5	406.4	1
5	457.2	1
7	508	1
3	558.8	1
4	609.6	1
3	660.4	1
3	711.2	1



Hammer Type:

1 = 17.6 lb

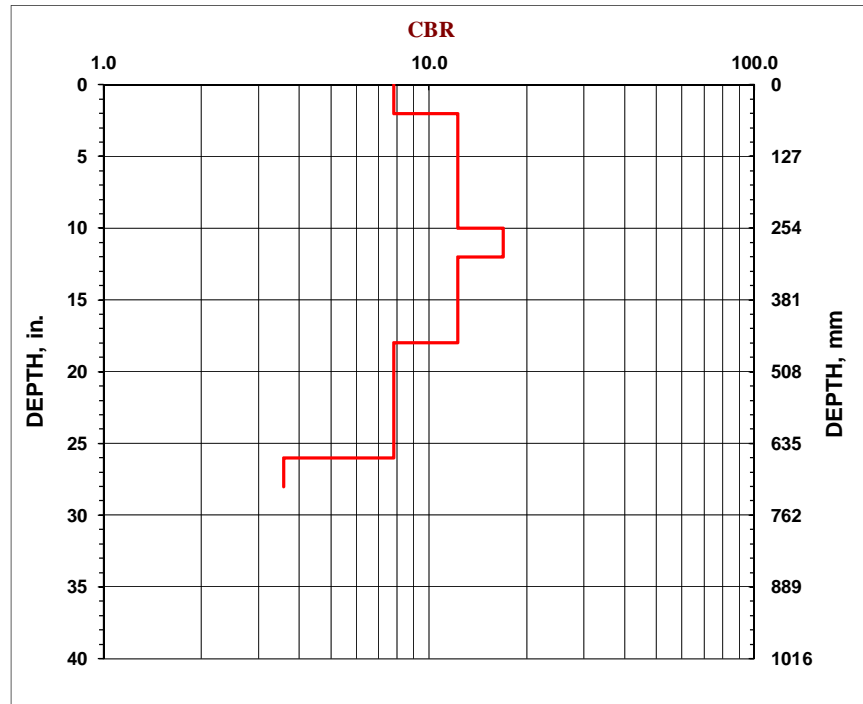
2 = 10.1 lb

Depth	Depth	Classification
0	0.33	Topsoil - 4 Inches
0.33	1	Brown, Silty SAND (SM) with Rock Fragments - Moist
1		Hand Auger Refusal (encountered rock)
		Offset 5 feet west and encountered the same issue.

## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>T-6</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~40+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/3/2014</u>

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
1	0	1
2	50.8	1
3	101.6	1
3	152.4	1
3	203.2	1
3	254	1
4	304.8	1
3	355.6	1
3	406.4	1
3	457.2	1
2	508	1
2	558.8	1
2	609.6	1
2	660.4	1
1	711.2	1



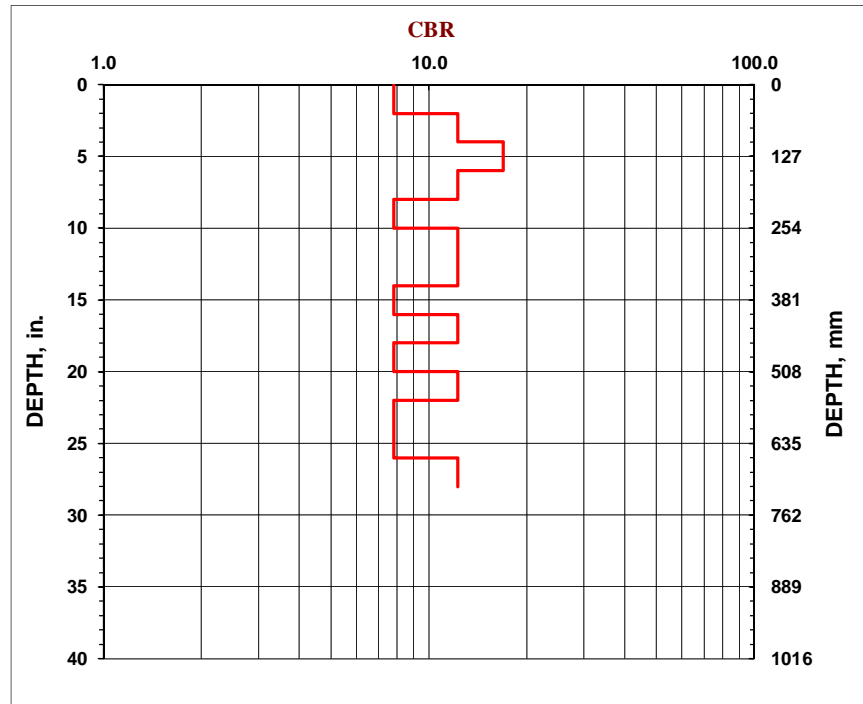
Hammer Type:  
 1 = 17.6 lb  
 2 = 10.1 lb

Depth	Depth	Classification
0	0.33	Topsoil - 4 Inches
0.33	4	Brown, Fine Sandy SILT (ML) - Moist
4		Hand Auger Terminated

## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>T-7</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~45+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/3/2014</u>

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
1	0	1
2	50.8	1
3	101.6	1
4	152.4	1
3	203.2	1
2	254	1
3	304.8	1
3	355.6	1
2	406.4	1
3	457.2	1
2	508	1
3	558.8	1
2	609.6	1
2	660.4	1
3	711.2	1



Hammer Type:

1 = 17.6 lb

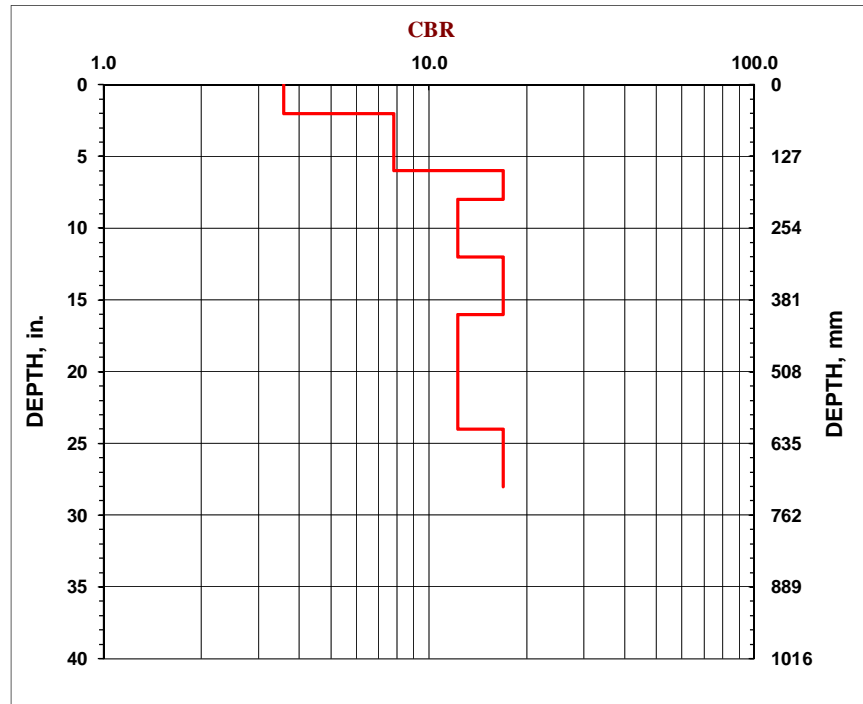
2 = 10.1 lb

Depth	Depth	Classification
0	0.33	Topsoil - 4 Inches
0.33	4	Brown, Fine Sandy SILT (ML) - Moist
4		Hand Auger Terminated

## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>T-8</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~49+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/3/2014</u>

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
1	0	1
1	50.8	1
2	101.6	1
2	152.4	1
4	203.2	1
3	254	1
3	304.8	1
4	355.6	1
4	406.4	1
3	457.2	1
3	508	1
3	558.8	1
3	609.6	1
4	660.4	1
4	711.2	1



Hammer Type:

1 = 17.6 lb

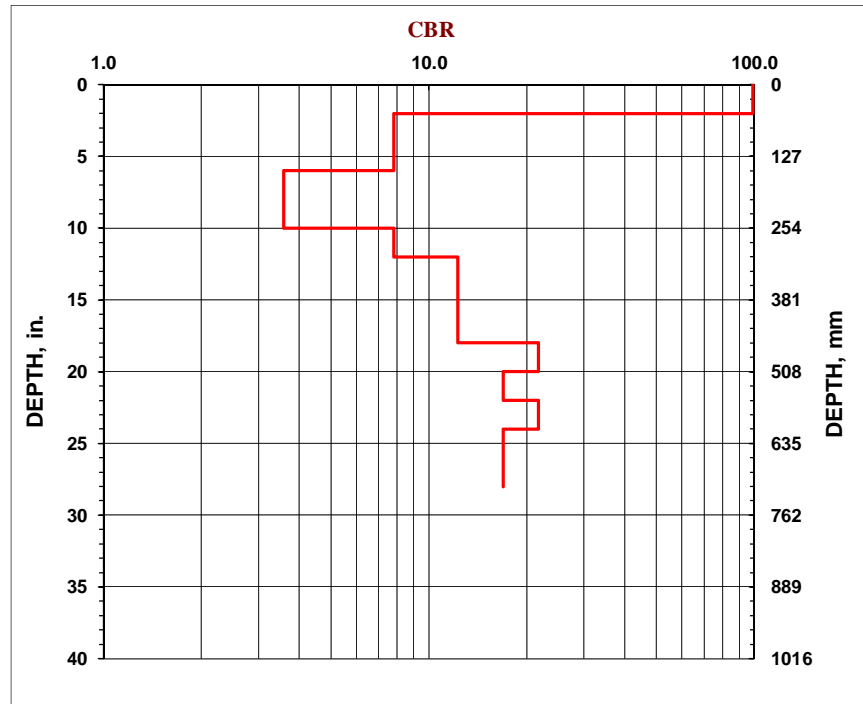
2 = 10.1 lb

Depth	Depth	Classification
0	1	Brown SILT (ML) - Wet
1		Hand Auger Refusal due to Rock
		Offset 30 feet towards SB lanes
		Hand Auger Refusal due to Rock @ 1 foot
		Offset to outside of SB lanes
0	0.33	Topsoil - 3 Inches
0.33	4	Brown, Fine Sandy SILT (ML) - Moist
4		Hand Auger Terminated
		Stewart Field Rep. attempted three more hand augers near the initial location
0	1	Hand Auger Refusal on Rock @ 1 foot
0	1	Tan Sandy SILT (ML) with Rock Fragments - Moist
1	3	Olive, Sandy SILT (ML) with Wood Fragments - Moist
3		Hand Auger Refusal
0	1	Olive, Clayey Elastic SILT (MH) with Roots and Organic Odor
1		Hand Auger Refusal

## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>B-9</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~55+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/3/2014</u>

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
1	0	1
0	50.8	1
2	101.6	1
2	152.4	1
1	203.2	1
1	254	1
2	304.8	1
3	355.6	1
3	406.4	1
3	457.2	1
5	508	1
4	558.8	1
5	609.6	1
4	660.4	1
4	711.2	1



Hammer Type:

1 = 17.6 lb

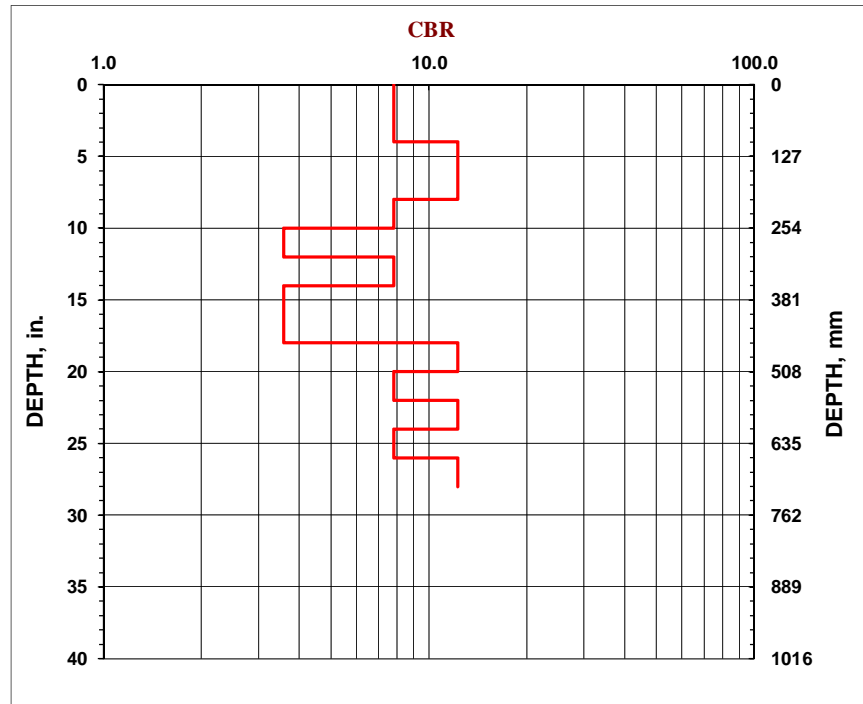
2 = 10.1 lb

Depth	Depth	Classification
0	0.25	Topsoil - 3 Inches
0.25	1	Tan, Sandy SILT (ML) - Moist
1	4	Brown, Sandy SILT (ML) - Moist
4		Hand Auger Terminated

## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>T-10</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~65+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/3/2014</u>

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
1	0	1
2	50.8	1
2	101.6	1
3	152.4	1
3	203.2	1
2	254	1
1	304.8	1
2	355.6	1
1	406.4	1
1	457.2	1
3	508	1
2	558.8	1
3	609.6	1
2	660.4	1
3	711.2	1



Hammer Type:

1 = 17.6 lb

2 = 10.1 lb

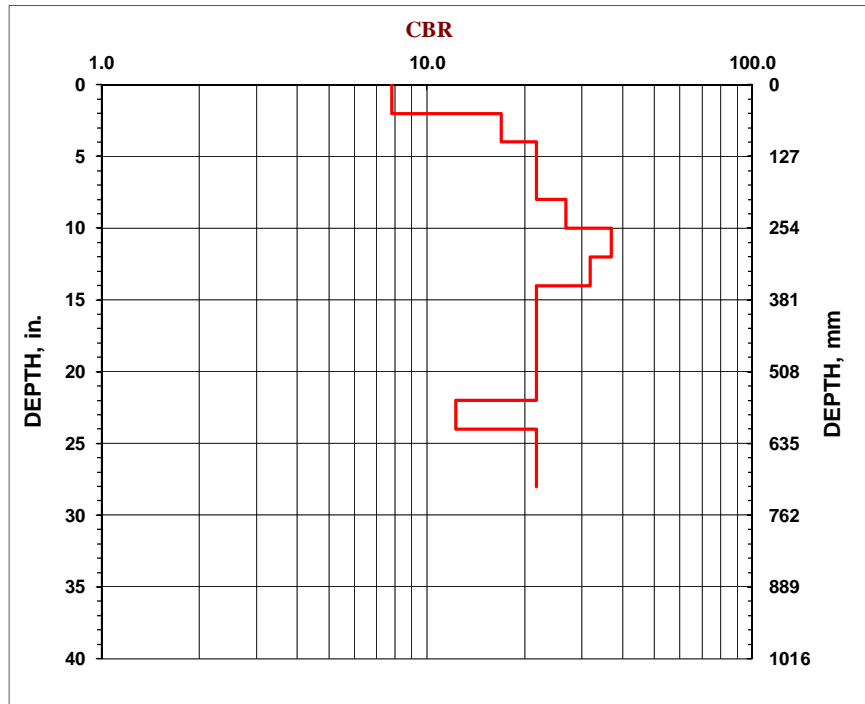
Depth	Depth	Classification
0	0.33	Topsoil - 4 Inches
0.33	4	Red Brown, Sandy SILT (ML) with 2" Piece of Plastic in Bucket at 2' - Moist
4		Hand Auger Terminated



## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>T-11</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~75+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/3/2014</u>

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
1	0	1
2	50.8	1
4	101.6	1
5	152.4	1
5	203.2	1
6	254	1
8	304.8	1
7	355.6	1
5	406.4	1
5	457.2	1
5	508	1
5	558.8	1
3	609.6	1
5	660.4	1
5	711.2	1



Hammer Type:

1 = 17.6 lb

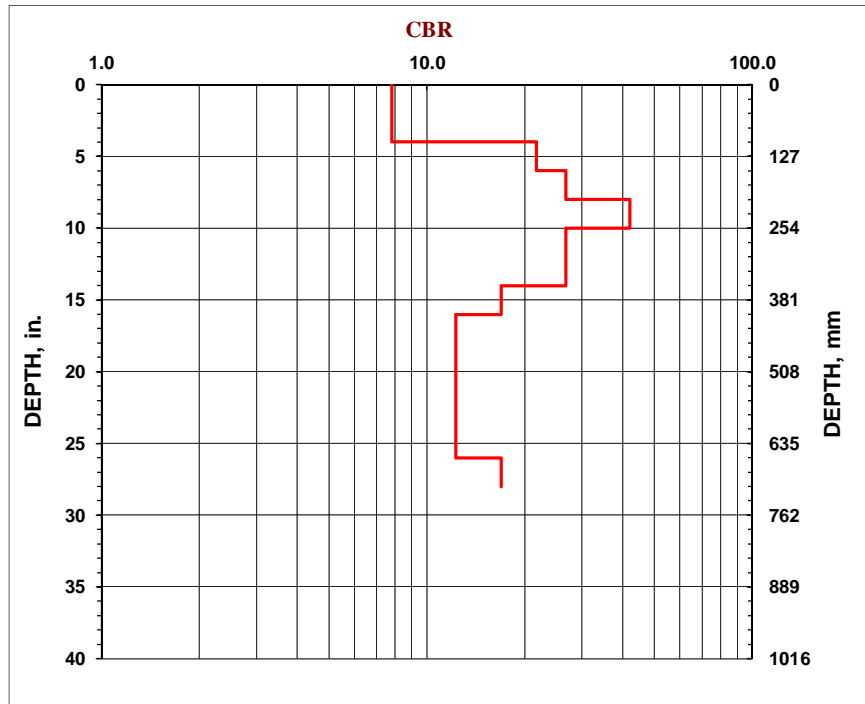
2 = 10.1 lb

Depth	Depth	Classification
0	0.33	Topsoil - 4 Inches
0.33	4	Brown, Sandy SILT (ML) - Moist
4		Hand Auger Terminated

## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>T-12</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~80+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/3/2014</u>

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
1	0	1
2	50.8	1
2	101.6	1
5	152.4	1
6	203.2	1
9	254	1
6	304.8	1
6	355.6	1
4	406.4	1
3	457.2	1
3	508	1
3	558.8	1
3	609.6	1
3	660.4	1
4	711.2	1



Hammer Type:

1 = 17.6 lb

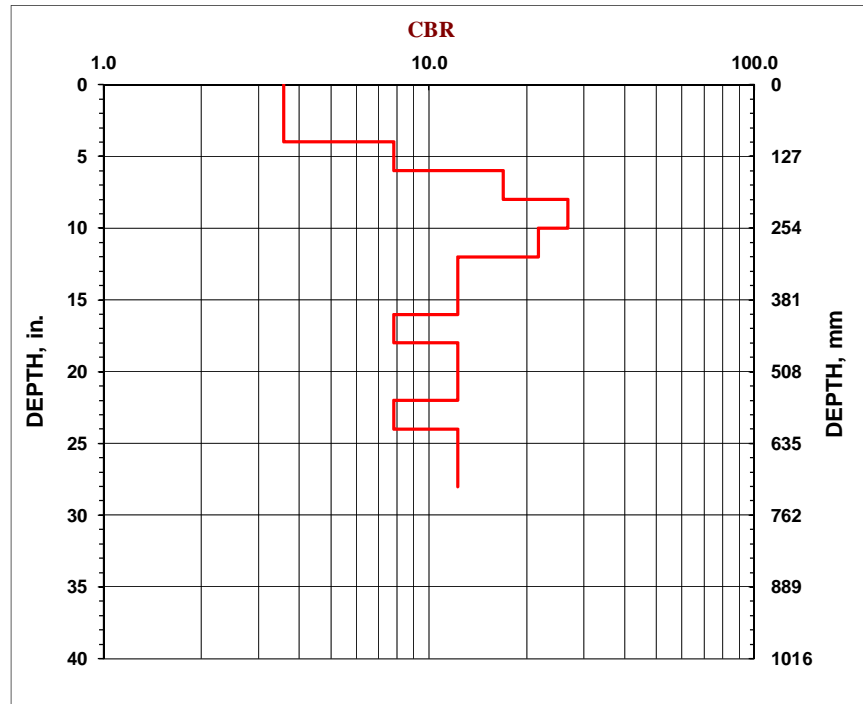
2 = 10.1 lb

Depth	Depth	Classification
0	0.33	Topsoil - 4 Inches
0.33	4	Brown, Fine Sandy SILT (ML) with Root at 1.5 feet - Moist
4		Hand Auger Terminated

## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>T-13</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~85+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/3/2014</u>

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
1	0	1
1	50.8	1
1	101.6	1
2	152.4	1
4	203.2	1
6	254	1
5	304.8	1
3	355.6	1
3	406.4	1
2	457.2	1
3	508	1
3	558.8	1
2	609.6	1
3	660.4	1
3	711.2	1



Hammer Type:

1 = 17.6 lb

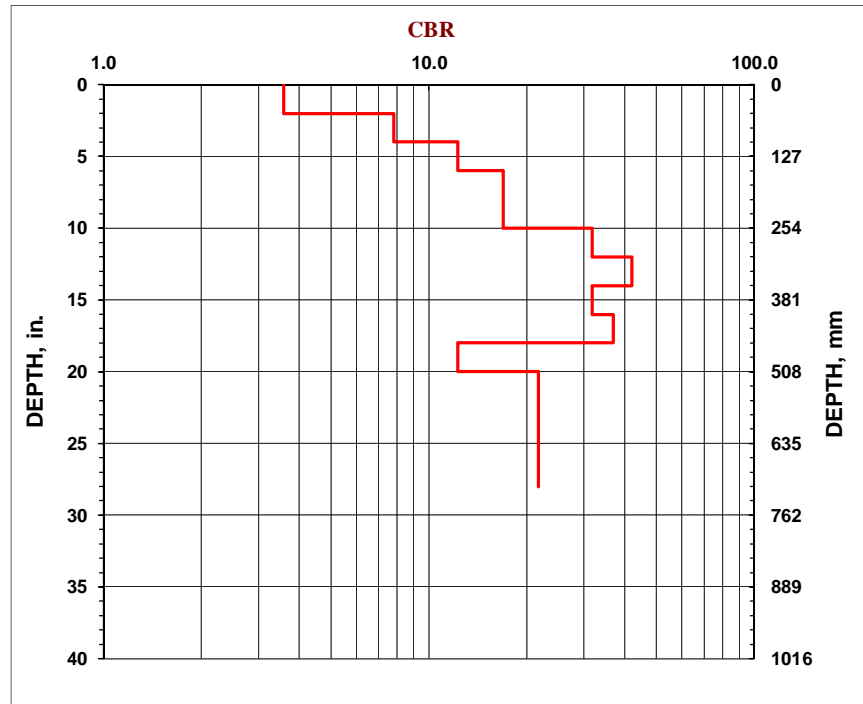
2 = 10.1 lb

Depth	Depth	Classification
0	0.33	Topsoil - 5 Inches
0.33	4	Brown, Sandy SILT (ML) - Moist
4		Hand Auger Terminated

## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>T-14</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~90+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/3/2014</u>

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
1	0	1
1	50.8	1
2	101.6	1
3	152.4	1
4	203.2	1
4	254	1
7	304.8	1
9	355.6	1
7	406.4	1
8	457.2	1
3	508	1
5	558.8	1
5	609.6	1
5	660.4	1
5	711.2	1



Hammer Type:

1 = 17.6 lb

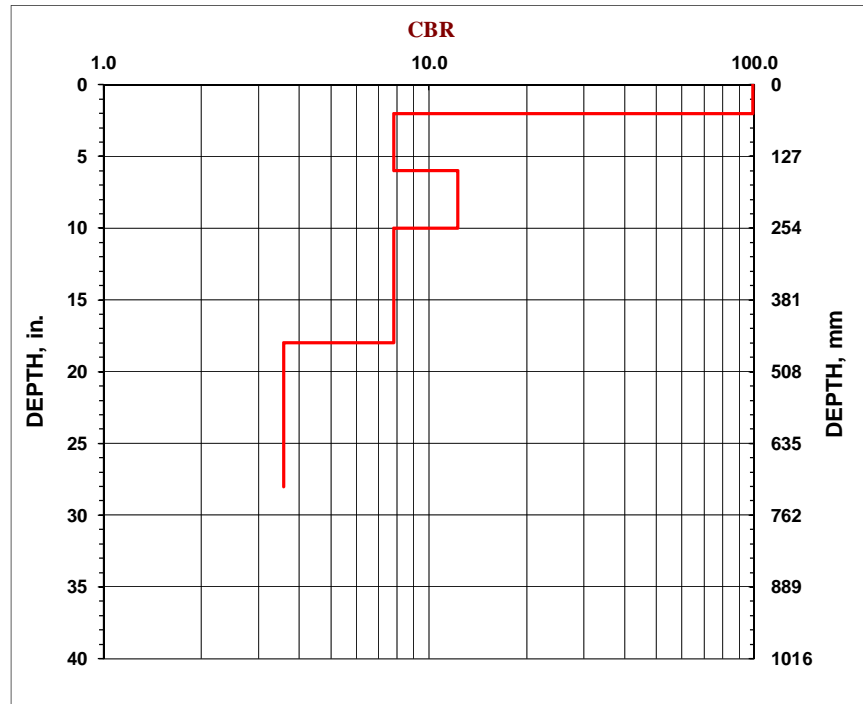
2 = 10.1 lb

Depth	Depth	Classification
0	0.3	Topsoil - 3.5 Inches
0.3	1	Brown, Sandy SILT (ML) with Rock Fragments - Moist
1		Hand Auger Refusal
		Offset 5 feet and encountered the same issues
		Offset another 5 feet and encountered the same issues

## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>T-15</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~93+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/4/2014</u>

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
1	0	1
0	50.8	1
2	101.6	1
2	152.4	1
3	203.2	1
3	254	1
2	304.8	1
2	355.6	1
2	406.4	1
2	457.2	1
1	508	1
1	558.8	1
1	609.6	1
1	660.4	1
1	711.2	1



Hammer Type:

1 = 17.6 lb

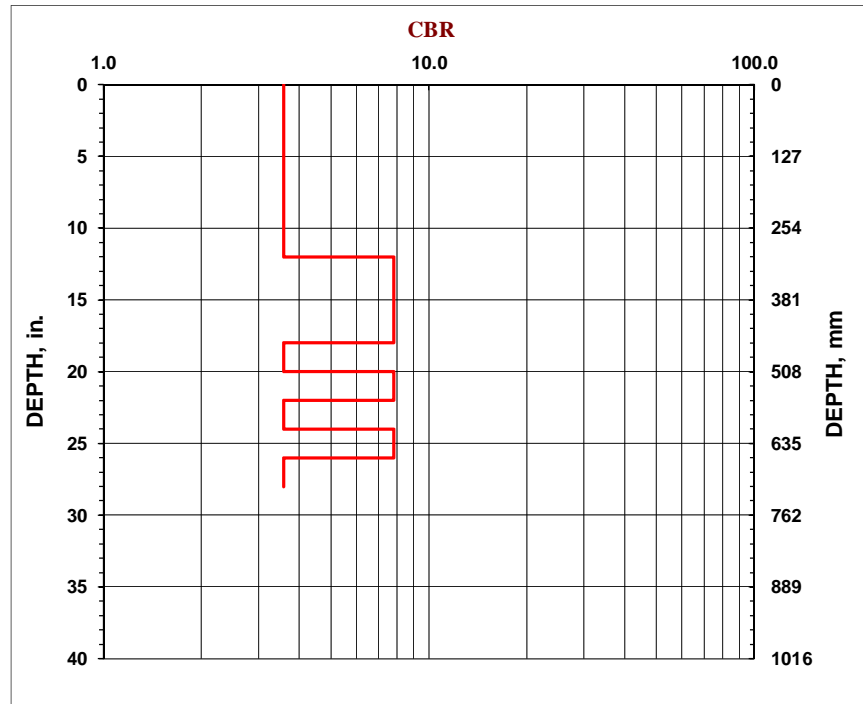
2 = 10.1 lb

Depth	Depth	Classification
0	0.33	Topsoil - 4 Inches
0.33	4	Brown, Sandy SILT (ML) with Rock Fragments- Moist
4		Hand Auger Refusal on Rock

## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>T-16</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~100+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/4/2014</u>

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	50.8	1
0	101.6	1
1	152.4	1
1	203.2	1
0	254	1
1	304.8	1
2	355.6	1
2	406.4	1
2	457.2	1
1	508	1
2	558.8	1
1	609.6	1
2	660.4	1
1	711.2	1



Hammer Type:

1 = 17.6 lb

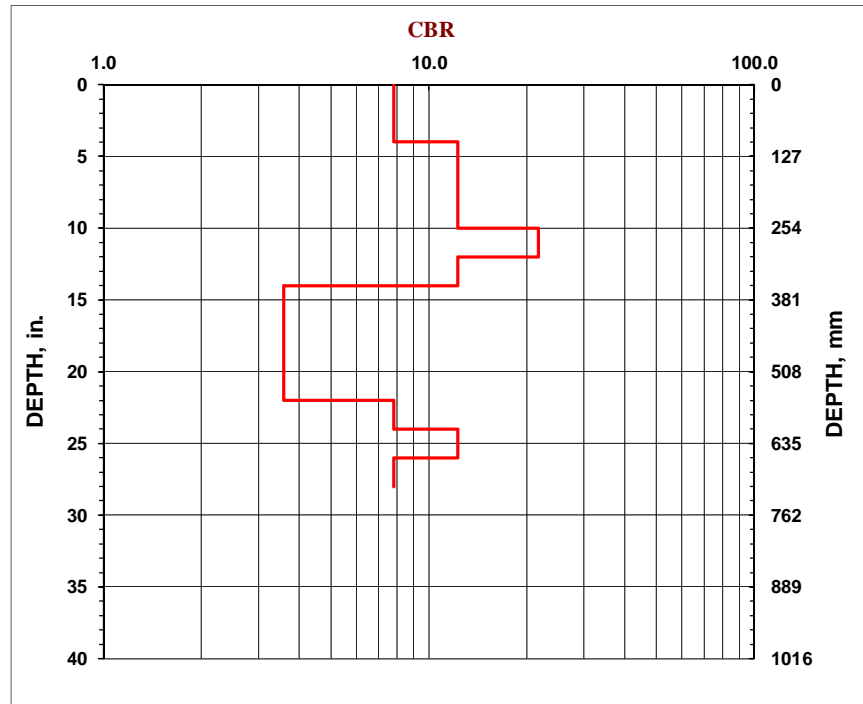
2 = 10.1 lb

Depth	Depth	Classification
0	0.33	Topsoil - 4 Inches
0.33	4	Brown, Sandy SILT (ML) - Moist
4		Hand Auger Terminated

## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>T-17</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~105+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/4/2014</u>

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
1	0	1
2	50.8	1
2	101.6	1
3	152.4	1
3	203.2	1
3	254	1
5	304.8	1
3	355.6	1
1	406.4	1
1	457.2	1
1	508	1
1	558.8	1
2	609.6	1
3	660.4	1
2	711.2	1



Hammer Type:

1 = 17.6 lb

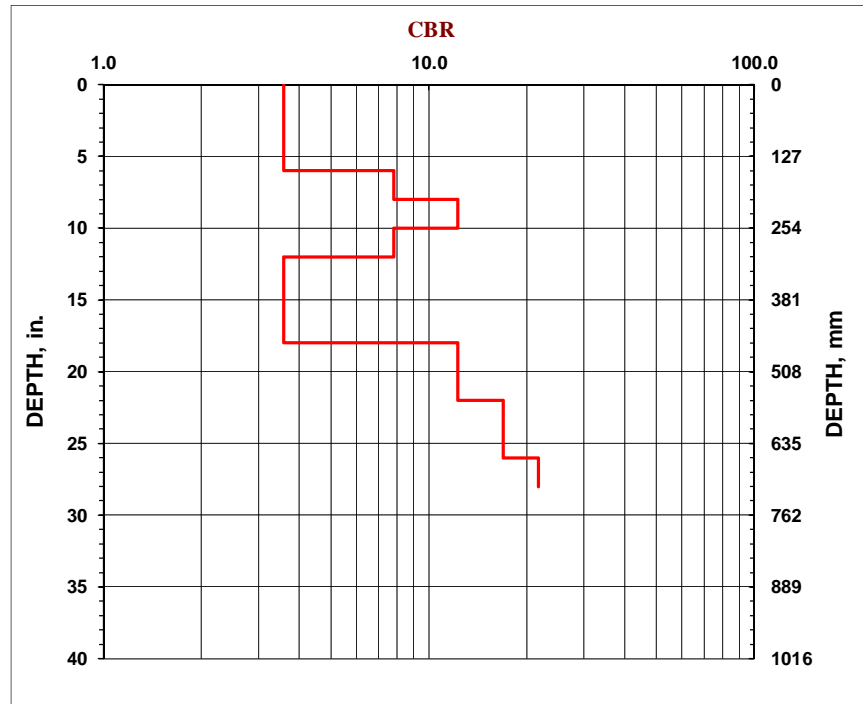
2 = 10.1 lb

Depth	Depth	Classification
0	0.25	Topsoil - 3 Inches
0.25	4	Brown, Sandy SILT (ML) with Roots 3 to 4 feet- Moist
4		Hand Auger Terminated

## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>T-18</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~110+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/4/2014</u>

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
1	0	1
1	50.8	1
1	101.6	1
1	152.4	1
2	203.2	1
3	254	1
2	304.8	1
1	355.6	1
1	406.4	1
1	457.2	1
3	508	1
3	558.8	1
4	609.6	1
4	660.4	1
5	711.2	1



Hammer Type:

1 = 17.6 lb

2 = 10.1 lb

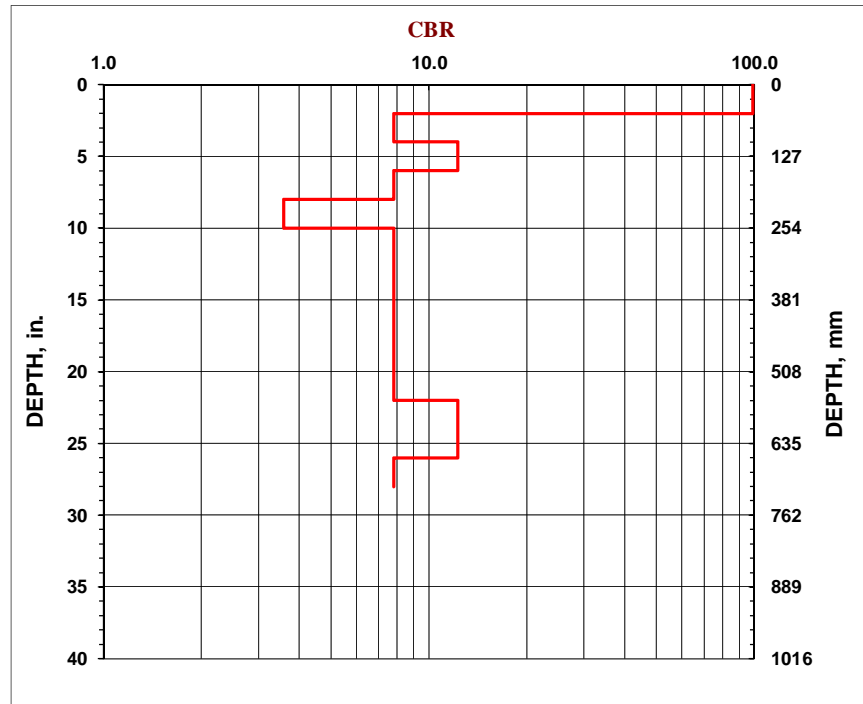
Depth	Depth	Classification
0	1	Topsoil - 4 Inches
1	3.5	Orange Tan, Sandy SILT (ML) with Clay Seams @ 3 feet - Moist
3.5	4	Gray, Clayey SILT (ML) - Moist
4		Hand Auger Terminated



## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>T-19</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~115+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/4/2014</u>

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
1	0	1
0	50.8	1
2	101.6	1
3	152.4	1
2	203.2	1
1	254	1
2	304.8	1
2	355.6	1
2	406.4	1
2	457.2	1
2	508	1
2	558.8	1
3	609.6	1
3	660.4	1
2	711.2	1



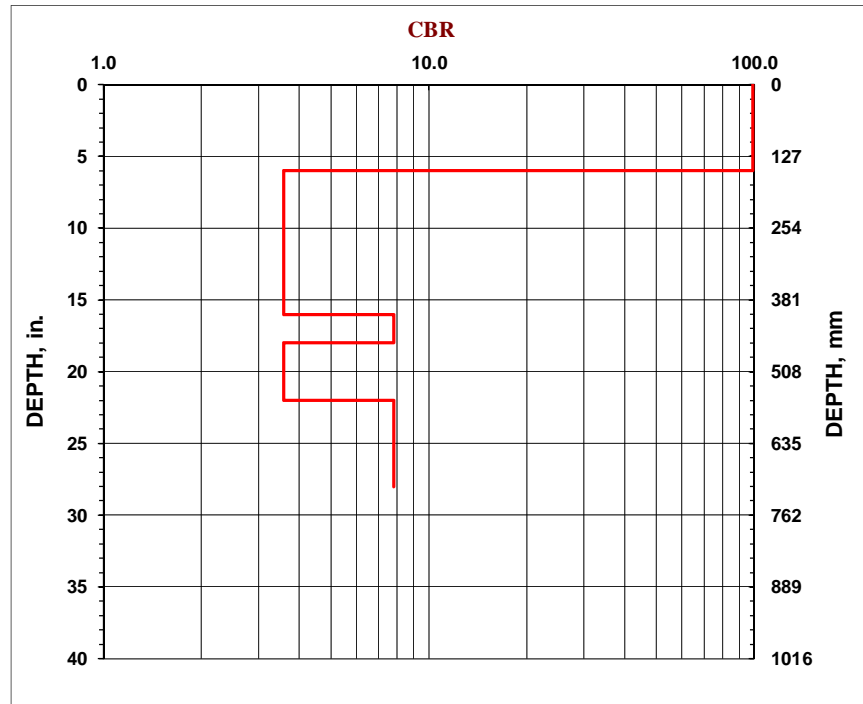
Hammer Type:  
 1 = 17.6 lb  
 2 = 10.1 lb

Depth	Depth	Classification
0	0.25	Topsoil - 3 Inches
0.25	4	Brown, Sandy SILT (ML) - Moist
4		Hand Auger Terminated

## DUAL MASS CONE PENETROMETER (DMCP) TEST DATA

Project: <u>Mt. Airy Greenway</u>	Test ID: <u>T-20</u>
Location: <u>Mt. Airy, North Carolina</u>	Station: <u>~120+00</u>
Client: <u>City of Mt. Airy</u>	Date: <u>4/4/2014</u>

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
1	0	1
0	50.8	1
0	101.6	1
0	152.4	1
1	203.2	1
0	254	1
1	304.8	1
1	355.6	1
1	406.4	1
2	457.2	1
1	508	1
1	558.8	1
2	609.6	1
2	660.4	1
2	711.2	1



Hammer Type:

1 = 17.6 lb

2 = 10.1 lb

Depth	Depth	Classification
0	0.33	Topsoil - 4 Inches
0.33	4	Brown, Sandy SILT (ML) - Moist
4		Hand Auger Terminated

## APPENDIX C

SITE PHOTOGRAPHS



Photograph #1: View of Existing Pathway near Worth Street.



Photograph #2: View of Existing Land at the Proposed Bridge 1 over Levills Creek.



Photograph #3: View of Foot Path Under Southern Railroad Bridge



Photograph #4: View Foot Path Under Rockford Street.





Photograph #5: View of Path Under U.S. 52.



Photograph #6: View of Pathway Under U.S. 52.



Photograph #7: View of Existing Land at the Proposed Bridge 2 Location



Photograph #8: View of Existing Pathway at Tharington Park

## APPENDIX D

NCDOT FOUNDATION RECOMMENDATIONS



# FOUNDATION RECOMMENDATIONS

PROJECT 45522.3.1

TIP NO. EB-5014

COUNTY SURRY

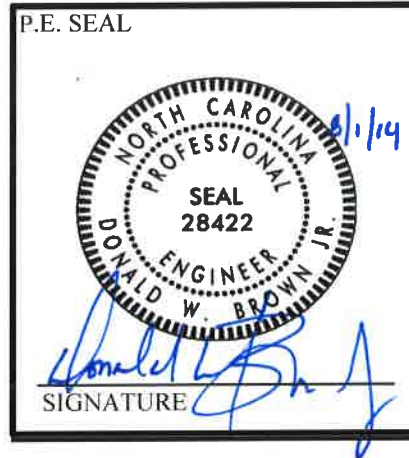
STATION -L- 23+07

BRIDGE 1

DESCRIPTION LOVILLS CREEK AND

ARARAT RIVER GREENWAY

	INITIALS	DATE
DESIGN	DB	8/1/14
CHECK	JM	8/1/14



	BENT STATION	FOUNDATION TYPE	FACTORED RESISTANCE	ADDITIONAL INFORMATION
<u>BRIDGE 1</u>				
END BENT 1	-L- 23+07	Column on 42" Diameter Drilled Pier	300 KIPS/PIER	Bottom of Cap Elev. = 985.30 ft Point of Fixity Elev. = 967 ft Tip No Higher Than Elev. = 962 ft Number of Shafts/Cap = 1
END BENT 2	-L- 23+84	Column on 42" Diameter Drilled Pier	300 KIPS/PIER	Bottom of Cap Elev. = 985.30 ft Point of Fixity Elev. = 961 ft Tip No Higher Than Elev. = 958 ft Number of Shafts/Cap = 1

(SEE NOTES ON PLANS AND COMMENTS ON FOLLOWING PAGES.)

## **FOUNDATION RECOMMENDATIONS NOTES ON PLANS**

1. FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS
2. INSTALL DRILLED PIERS AT END BENT NO. 1 TO A TIP ELEVATION NO HIGHER THAN 962 FT AND WITH THE REQUIRED TIP RESISTANCE AND PENETRATION OF AT LEAST 2 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.
3. INSTALL DRILLED PIERS AT END BENT NO. 2 TO A TIP ELEVATION NO HIGHER THAN 958 FT AND WITH THE REQUIRED TIP RESISTANCE AND PENETRATION OF AT LEAST 5 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.
4. SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. FOR SID INSPECTIONS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
5. CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CSL TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

**FOUNDATION RECOMMENDATIONS COMMENTS**

1. The design scour elevation at End Bent No. 1 is elevation 978.5 ft.
2. The design scour elevation at End Bent No. 2 is elevation 978.0 ft.

# FOUNDATION RECOMMENDATIONS

PROJECT 45522.3.1

TIP NO. EB-5014

COUNTY SURRY

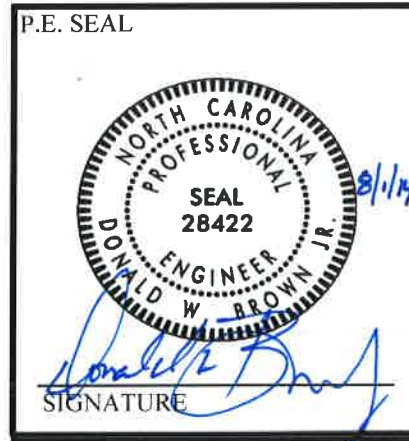
STATION -L- 122+08

BRIDGE 2

DESCRIPTION LOVILLS CREEK AND

ARARAT RIVER GREENWAY

	INITIALS	DATE
DESIGN	DB	8/1/14
CHECK	JM	8/1/14



	BENT STATION	FOUNDATION TYPE	FACTORED RESISTANCE	ADDITIONAL INFORMATION
END BENT 1	-L- 122+08	Cap on HP 12x53 Steel H-Piles	60 KIPS PER PILE	Bottom of Cap Elev. = 984.20 ft Average Estimated Pile Length = 30 ft Number of Piles/Cap = 2
END BENT 2	-L- 122+58	Cap on HP 12x53 Steel H-Piles	60 KIPS PER PILE	Bottom of Cap Elev. = 984.10 ft Average Estimated Pile Length = 30 ft Number of Piles/Cap = 2

(SEE NOTES ON PLANS AND COMMENTS ON FOLLOWING PAGES.)

## **FOUNDATION RECOMMENDATIONS NOTES ON PLANS**

1. FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
2. PILES AT END BENTS NO. 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 60 KIPS PER PILE.
3. DRIVE PILES AT END BENTS NO. 1 AND 2 TO A REQUIRED DRIVING RESISTANCE OF 100 KIPS PER PILE.
4. STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENTS NO. 1 AND 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.